

0. Summary

This project aims to meet the increasing demand for air transport and improve the safety of air transport by constructing and improving airport facilities and equipment including the passenger terminal building and the control tower at the Surabaya Airport in East Java of Indonesia, in line with the forecast of increasing airport use induced by the economic growth in East Java.

The project has been highly relevant to Indonesia’s development plan, development needs, as well as Japan’s ODA policy; therefore its relevance is high. There are six items of target indicators which were set at the ex-ante evaluation to be met seven years after the project completion. In three out of the six target indicators (domestic passengers, domestic cargo volume, and domestic aircraft movement) actual figures of five years after substantial completion of the project have already exceeded the targets¹. Therefore the effectiveness of the project is high. In the impact aspect, it has been observed that the project has led to the increase of tourists in the area near the airport. Although the project cost was within the plan, the project period was exceeded, therefore the efficiency of the project is fair. The sustainability of the project effect is high, because no major problems have been observed in institutional, technical and financial aspects.

In light of the above, this project is evaluated to be highly satisfactory.

1. Project Description



Project Location



Entrance to the Surabaya Airport

1.1 Background²

Indonesia is the world’s largest archipelagic country that consists of nearly 17,000 islands in a vast

¹ In the project civil works of additional scope was completed in April 2010. But the substantial completion date is May 2006 and the new airport has started operation in 2006.

² Sources of the data in 1.1 are the appraisal documents.

area with a distance of 1,888 km from north to south and 5,110km from east to west. For economic development of the country that encompasses such a wide area, it is a critical issue to strengthen and facilitate the capacity to transport. Indonesia has about 300 privately-owned airports. Among those airports, about 160 are designated as domestic airports and 23 as international ones. Centered at the Jakarta International Airport in the country’s capital, Bali Ngurah Rai International Airport (also known as Denpasar International Airport), and Surabaya Juanda International Airport (hereinafter the “Surabaya Airport”), about 200 regular domestic and international flights connect those airports.

Air transport in Indonesia has grown significantly along with the country’s economic development in the 1990s. In the last 20 years, the average annual growth rate of the country’s passenger transport by air has been 18.7%, and that of cargo transport by air 33.4%, respectively. In 1998, both passenger transport and cargo transport by air decreased significantly because of the Asian currency crisis. It is worth noting that the volume of domestic passenger transport by air in 1998 was less than 60% of that of 1997. However, both passenger transport and cargo transport by air have increased since 2000 because of the recovered demand for air transport. The Surabaya Airport, opened in 1964, has been an international airport with the rank of Class 1 since 1989³. It is the third largest airport in Indonesia after the ones in Jakarta and Bali.

1.2 Project Outline

The objective of this project is to meet the increasing demand of air transport and improve the safety of air transport by constructing and improving airport facilities and equipment including the passenger terminal building and the control tower at the Surabaya Airport located in East Java of Indonesia, thereby contributing to economic development of the hinterland and increase of distribution.

Phase	1	2
Loan Approved Amount/ Disbursed Amount	12,867 million yen / 12,866 million yen	15,007 million yen / 14,542 million yen
Exchange of Notes Date/ Agreement Signing Date	December 1996 / December 1996	August 2003 / March 2004
Terms and Conditions	(Civil works) Interest Rate: 2.7% Repayment Period: 30 years (Grace Period: 10 years) Conditions for Procurement: General untied (Consulting services) Interest Rate: 2.3% Repayment Period: 30 years (Grace Period: 10 years) Conditions for Procurement: General untied	(Civil works) Interest Rate: 1.8% Repayment Period: 30 years (Grace Period: 10 years) Conditions for Procurement: General untied (Consulting services) Interest Rate: 1.8% Repayment Period: 30 years (Grace Period: 10 years) Conditions for Procurement: General untied

³ The airport classes are as follows: Class 1: International (major) airport; Class 2: Domestic trunk route airport; and Class 3: Domestic feeder airport.

Borrower / Executing Agency(ies)	Republic of Indonesia / Directorate General of Civil Aviation (DGCA), Ministry of Transportation	Republic of Indonesia / Directorate General of Civil Aviation (DGCA), Ministry of Transportation
Final Disbursement Date	December 2005	September 2010
Main Contractor (Over 1 billion yen)	PT. Waskita Karya (Indonesia)/PT. Teguh Raksa Jaya (Indonesia)/Kajima corporation (Japan)/Mitsubishi corporation (Japan) (JV), PT. Adhi Karya (Indonesia)	
Main Consultant (Over 100 million yen)	LAPI ITB (Indonesia)/Japan Airport Consultants, Inc. (Japan) (JV), PT. Digratia Avia Consultant (Indonesia)/PT. Billitonica Indomatra Consultant (Indonesia)/PT. Trans Asia Consultant (Indonesia) (JV)	
Feasibility Studies, etc.	-E/S (Engineering Service) conducted by JICA, 1992, -I/P (Implementation Program) formulated by DGCA based on the E/S, 1995, -D/D (Detailed Design) of the extension of apron conducted by East Java state government by using a consultant, 2008	
Related Projects	Yen loan: E/S conducted by JICA in 1992 Grant aid: “the Project for Airport Security System Improvement” implemented by JICA based on G/A (Grant Agreement) in November 2010	

2. Outline of the Evaluation Study

2.1 External Evaluator

Ryujiro Sasao (IC Net Limited)

2.2 Duration of Evaluation Study

Duration of the Study: September 2012 – July 2013

Duration of the Field Study: December 8–22, 2012, and February 24 – March 5, 2013

3. Results of the Evaluation (Overall Rating: A⁴)

3.1 Relevance (Rating: ③⁵)

3.1.1 Relevance to the Development Plan of Indonesia

The Government of Indonesia has proceeded with the plans for establishing economic infrastructure to help increase the transport capacity since the first national development five-year plan of 1968. In particular, the government regarded the air transport connecting islands rapidly and efficiently as an important development sector from the point of view of the country's geographical features.

At the time of the appraisal, the national development plan (PROPENAS 2000-2004) emphasized the improvement of traffic infrastructure as an economic basis and, in particular, put emphasis on the necessity of repairing the existing facilities in the airport sector.

At the time of the ex-post evaluation, the national development plan (2010-2014) aims to develop the economy in five years, improve the quality and quantity in the fields of road, railroad, port, airport,

⁴ A: Highly satisfactory; B: Satisfactory; C: Partially satisfactory; D: Unsatisfactory

⁵ ③: High; ②: Fair; ①: Low

electricity, irrigation, drinking water and postal service by continuous development of infrastructure. In addition, according to the “Master Plan – Acceleration and Expansion of Indonesia’s Economic Development 2011–2025” (MP3EI), which was issued in May 2011, the connection among regions is important as the precondition to realize the plan. Accordingly, the significance of the airport sector, which is an important factor in the transport system, is strong. The plan also refers to the acceleration of international distribution. The Surabaya Airport is important in that sense as well.

The improvement of the airport by the project is in line with Indonesia’s development policies both at the appraisal, hence, the ex-post evaluation and the project is highly consistent with the development policies. Moreover, no change of the external environment has affected the original relevance of the project up to the point of ex-post evaluation.

3.1.2 Relevance to the Development Needs of Indonesia

At the time of the appraisal, the total number of passengers was 2.6 million, and the total weight of handled cargoes at the airport reached 28,000 tons⁶. Surabaya was the center of East Java and the use of the airport was expected to rapidly increase in accordance with the region’s economic growth. Under such circumstances, it was necessary to expand the airport to meet the future increase of demand, as the lack of expansion would have become the constraint for responding the demand.

According to the recent statistics, as shown in the section on “Effectiveness” below, the number of passengers reached 13.78 million in 2011. This figure is far beyond the forecast of the second appraisal (6.78 million for the year 2013) in 2004. Accordingly, the expected needs at the time of the appraisal were confirmed retroactively by statistics. The decree of the Minister of Transport in 2012 designated the Surabaya Airport as the first category of hub airport⁷ and gave the airport the central role in the development of East Java.

In the light of the above, development needs expected at the time of the appraisal was confirmed retroactively by statistics and the position of the airport in the transport and airport sector is important. Accordingly, the development needs were very strong.

3.1.3 Relevance to Japan’s ODA Policy

With regard to the first appraisal, this project seems to be related to “Well-balanced development of the entire nation with secured equity” and “Improvement of industrial basis for the purpose of continuous invitation of investment” mentioned as two out of five priority items in the Country Assistance Policy for Indonesia issued in February 1994. With regard to the second appraisal, in the Medium-Term Strategy for Overseas Economic Cooperation Operations (April 2002) concerning the support to Indonesia, the emphasis was on “economic infrastructure” which was necessary for the return to the path of sustainable growth through economic reform. This project was in line with the

⁶ Figures are at the time of first appraisal. At the time of second appraisal all the passengers are 4.75 million and handled cargoes are 43,089 ton. Therefore, with the forecast of air transport demand increase, it was necessary to expand the airport facilities and to be ready for the future demand

⁷ There are 3 categories of hub airport. The definition of the first category is the airport whose passenger volume is more than five million passengers a year.

policy. Furthermore, the Country Assistance Strategy for Indonesia (October 2003) stated “Formulation of an environment for growth led by the private sector’s investment” as one of the priority issues and the project was in conformity with the policy as well.

As shown above, the project is in line with the Japanese government policies both at the first and second appraisal.

In light of the above, this project has been highly relevant with Indonesia’s development plan, development needs, as well as Japan’s ODA policy; therefore its relevance is high.

3.2 Effectiveness⁸ (Rating: ③)

3.2.1 Quantitative Effects (Operation and Effect Indicators)

The planned targets set at the time of the second ex-ante evaluation and the results are shown below in the Table 1. At the time of ex-post evaluation⁹ in three out of the six target indicators (domestic passengers, domestic cargo volume, and domestic aircraft movement) actual figures have already exceeded the target which were set at the ex-ante evaluation to be met seven years after the project completion. In addition, the average degree of achievement of targets of the six items is 115%, indicating high effectiveness.

Table 1: Operation and Effect Indicators

Indicators	Baseline (2001)	Target (7 years after the completion of the project: 2013)	Results (5 years after the completion of the project*: 2011)
Number of international passengers (thousand/year)	618	1,630	1,409
Number of domestic passengers (thousand/year)	2,443	5,152	11,583
International cargo volume (t/year)	14,240	50,284	17,890
Domestic cargo volume (t/year)	23,527	54,098	77,255
Number of takeoffs and landings of international flights per year	6,426	15,215	10,145
Number of takeoffs and landings of domestic flights per year	47,677	76,152	100,514

Source: Baseline data and targets from the ex-ante evaluation table, results from API (airport operation company)

*5 years after the substantial project completion in 2006

The strong macro economy is the main background of the outcome above. The GDP and GRDP figures were mainly utilized to set the target indicators. Both the GDP and GRDP figures for the early 2000s forecasted at the time of the appraisal were both 4.5%. However, as shown in the following table, the actual figures of both real GDP and GRDP clearly exceed the forecast. (The figures for 2010 and 2011 are forecast ones.)

⁸ Sub-rating for Effectiveness is to be put with consideration of Impact.

⁹ Five years have passed since the substantial project completion in 2006.

Table 2: Real GDP and GRDP

Year	Unit: %						
	2005	2006	2007	2008	2009	2010	2011
GDP (Indonesia)	5.6	5.5	6.3	6.1	4.5	5.8	6.3
GRDP (East Java)	5.6	5.8	6.1	5.9	5.0	6.1	6.5

Source: Regional Economic Indicators-Bappeko Surabaya, 2011

The indicators of Table 1, which are below the target, reveal that the growth of international cargo volume is particularly slow. With regard to the forecast on cargo volume, a higher GRDP elasticity of demand¹⁰ was applied to international cargo than domestic cargo. In fact, while the growth of GRDP between 2004 and 2011 (based on year 2000 price) is 1.51 times, the growth of the export component is 1.82 times, which means the increasing share of export in GRDP. The monetary value of export from the ports in East Java became three times between 2004 and 2011 and it is estimated that marine transport played a big role in the increasing export¹¹. Consequently, with regard to the roles expected of Surabaya airport, the airport's contribution in domestic transport has increased, while other logistics measures are more influential in international transport.

The content of international cargo is as follows¹². The major import items are mechanical and electrical parts, footwear, postal items and documents. The major export items are marine products¹³.

3.2.2 Qualitative Effects

(1) Safety

The operation and management of the Surabaya Airport meets the safety standards of the International Civil Aviation Organization (ICAO). According to the airport operation company, the installed systems such as the new control tower, the upgraded airfield lighting system, and the meteorological observation system contribute to aviation safety. Research during the ex-post evaluation has revealed that¹⁴, although the Surabaya Airport has had no serious accident in the last 10 years, an accident involving abnormal landing occurred in 2007¹⁵.

(2) Airport services

During the site research in the ex-post evaluation, the External Evaluator was unable to obtain the statistics or information on the punctuality of departures and arrivals. (In interviews, randomly selected 10 passengers unanimously stated that the punctuality depends on airlines rather than airports.) The same interviewees also stated that the Surabaya Airport is as good as other big airports in terms of space of terminal, layout of facilities (access), distance to move, and time necessary for check-in. Many of them also state that the quality of services has improved since the time prior to the

¹⁰ GRDP elasticity of demand was calculated based on the past data.

¹¹ The source of those data is "East Java in Figures" (Statistics of East Java Province). According to the interviewed logistics companies, there is no direct flight from the Surabaya Airport to Japan and some products are exported to Japan through Jakarta. This is another reason why international cargo has not grown much.

¹² Source: Statistics of API (2012)

¹³ Their share in all export items is about 50% (weight base).

¹⁴ Although we requested API to provide records of past accidents, they were not available.

¹⁵ An aircraft (Boeing 737 type) made a belly landing off the runway with a strong impact owing to the bad weather and insufficient caution of the pilots. Two out of the 148 passengers were slightly injured.

project. Hence, passengers' satisfaction with the convenience of the airport is high. Also in the interview to the staff of airline companies working in the Surabaya airport (4 companies, 5 staff members) they replied that the Surabaya airport is as good as or even better than other big airports in terms of time necessary for check-in and quality and quantity of various facilities.

3.3 Impact

3.3.1 Intended Impacts

The originally expected impact is economic development of the hinterland and increase of distribution. The following is a summary of the information obtained during the ex-post evaluation.

According to officials of the tourism office of Sidoarjo, where the Surabaya Airport is located, the tourism-related income of the city, has increased by 30% since the project, and the number of hotels has increased from 30 to 40 in 2007 after the project.

In the city of Surabaya, the hinterland of the airport, the direct impact of airport improvement seems to have appeared in the increase of tourists and hotels (the city's service and investment promotion section).

Three companies related to the airport including a user company state that their revenues have been increasing in the recent years because of the increase of volume of cargos handled and so on. Accordingly, the project is highly appreciated by them. Two of the companies handle cargos and provide services to passengers under the contract with airlines. The other company is a logistics one. The number of employees of the three companies has increased, indicating a positive impact on employment. Light industry products and marine products are reported to be the major export items.

Table 3 summarizes the economic indicators related to the project. In general, figures have improved after the completion of the project. "Visitors to Sidoarjo city" "Number of foreign tourists to East Java" and "Sales in hotel industry in East Java" are in line with the results of the interviews above.

Table 3: Economic Indicators related to the Project

Year	2005	2006 (Completion of construction*)	2007	2008	2009	2010	2011
Visitors to Sidoarjo city	n.a.	441,989	446,663	453,576	454,770	469,465	n.a.
Employment in Surabaya city	214,322	222,126	227,382	235,812	244,580	n.a.	n.a.
Industrial production of Surabaya (Billion Rp.)	9,699	10,173	10,230	10,321	10,412	n.a.	n.a.
Economic growth of Surabaya (%)	6.33	6.35	6.31	6.23	5.3	6.2 (Forecast)	6.7 (Forecast)
Number of foreign tourists to East Java	86,558	87,568	98,711	156,726	155,156	168,888	185,815
Sales in hotel industry in East Java (Billion Rp.)	2,254	2,363	2,428	2,548	2,712	3,067	3,345 (Interim)
Number of enterprises in manufacturing in East Java	4,715	n.a.	n.a.	6,248	6,183	n.a.	n.a.
Real GDP growth rate of East Java region (%)	5.64	5.8	6.11	5.9	5.01	6.05 (Forecast)	6.51 (Forecast)

Source: Tourism office of Sidoarjo city; Regional Economic Indicators-Bappeko Surabaya, 2011; Book of Surabaya Dalam Angka 2010; East Java in Figures (Statistics of East Java Province, version of 2002, 2006, 2008, 2011, 2012) *The civil works of the original scope were completed in May 2006.

3.3.2 Other Impacts

(1) Impacts on the natural environment

According to the then project manager, environment monitoring was conducted by the executing agency, DGCA based on ANDAL (Report on the environment impact assessment), RKL (Environment management plan), and RPL (Environment monitoring plan), all of which are related to the project and were formulated in 1999¹⁶.

Environment monitoring after the completion of the project is conducted based on the Decree of the Minister of Environment No. 45 Year 2005 concerning the guidelines on the implementation of RKL and RPL. External experts are commissioned to conduct the research by the AP1 Surabaya office and the state of air, water, noise and other factors is monitored every six months and the report is issued.

According to several residents around the airport, noise has worsened since the completion of the project¹⁷, although they recognized the positive economic impact of the project at the macro level. The obtained environment monitoring report (first half of 2012) also states that the figures in several items of air, water and noise exceed the national standards set by the Ministry of Environment. Accordingly, 13 recommendations for improvement were also made in the report. The External Evaluator made inquiries on the current situation of the recommendations and confirmed that corrective actions were already taken on seven items, although there are six remaining items to be tackled¹⁸. The details of situation are as follows.

¹⁶ The results of environment monitoring have not been confirmed by document, although the External Evaluator requested DGCA and the airport operating company to provide with detailed information.

¹⁷ The interviewees stated that the frequency of roars of planes at the take-off and landing increased in accordance with the increase of flights.

¹⁸ According to the above monitoring report, with regard to the noise issue, the following measures are implemented: determination of the direction of takeoff and landing to avoid the dense populated area, changing the type of aircraft to bigger ones to reduce the number of aircraft movement, tree plantation and so on.

Table 4: Recommendations listed in environment monitoring report (first half of 2012) and the situation of countermeasures

Number	Recommendations	Situation of counter measures (The implemented measures are shown in shadow.)
1	As there are items of air, water and so on, which exceed the national standard set by the Ministry of Environment, technology of low pollutant should be introduced so that emission yielded from electric power plant, incinerator and so on may become below quality standard.	Not implemented yet
2	Conducting periodical maintenance of machines such as power plant and incinerator operating in the airport so that machine emission doesn't exceed quality standard	Implemented by contracting out
3	Introducing traffic arrangement to alleviate traffic jam at airport surrounding area	Not implemented yet
4	Plantation of trees around the area of airport with aim to lessen the impact of air pollution on residents	About 1,600 trees were planted since July 2012.
5	Sorting the type of dry garbage and wet garbage in order to reduce the garbage amount burned in the incinerator and executing 3R principle (Reduce, Reuse and Recycle)	Implemented
6	Management of water capture area to avoid the existence of ponds within the Surabaya airport and to avoid the arrival of wild birds affecting the landing and departure of planes	A study on the causes of ponds was conducted.
7	Improvement of the capacity of water treatment plant (WTP) in accordance with the increase of operation size of the airport	O&M of WTP is contracted out.
8	Improvement of patrol system in the airport site by the improvement of facilities for patrol to reduce the bird strike	Patrols have been carried out but the patrol facility has not been enhanced.
9	Usage of solar cell as backup energy source supplier	Not implemented yet
10	Starting applying of zero emission processes and energy efficiency	Not implemented yet
11	Making sure the use of self protective device (APD) such as ear plugs, gloves and safety shoes by the airport staff to keep their safety	Already equipped
12	Supporting the accurate conduct of emission test by regular sweeping around the tip of chimney of incinerator	Already implemented
13	Conducting measurement of vibration intensity in the surrounding area of the Surabaya airport in the near future	Not implemented yet

(2) Land Acquisition and Resettlement

The necessary resettlement of residents was complete and 367 households (1,064 people) were resettled. The necessary acquisition of 6 ha of land near the entrance of the access road, which had not been done at the time of the appraisal, was completed in June 2006 without resettlement of residents. Civil works of this part of the access road was completed in September 2006¹⁹.

Resettlement conducted before the appraisal was based on the President Decree No.55 of 1993. Interviews with the community leaders of resettled residents such as village chief revealed their complaints about the content of the compensation, although they are satisfied with the negotiation method. They stated that the quality of the provided residence at the resettled place was good but some residents who had been engaged in farming could no longer do so and had to find jobs at places far

¹⁹ Another acquisition of land and related resettlement (289 households, 1,125 people) planned in the master plan were suspended because Japanese and Indonesian governments decided that its need was low.

from their residence (It seems that 10% of the residents are unemployed)²⁰. During the resettlement process, however, there was no violence or trouble.

In summary, the positive impact by the project on the companies using the airport is clearly confirmed. The project has led to the increase of tourists in the cities of Sidoarjo and Surabaya. Although it is very difficult to make an exact assessment of the economic impact on the other economic indicators of the region, the collected information as a whole indicates that the project may have had a certain impact on the region. Although there is no serious problem on resettlement and land acquisition, with regard to the natural environment, periodic environment monitoring reported issues to address in air, water and noise. Therefore, continuous actions for improvement are expected.

In light of the above, this project has largely achieved its objectives; therefore its effectiveness is high.

3.4 Efficiency (Rating: ②)

3.4.1 Project Outputs

This project is to construct new airport facilities including passenger terminal, which can accommodate six million passengers and 120,000 tons of cargos, at the opposite side (north side) of the existing airport facilities (south side) with runways in between. The project also conducts the renovation of facilities related to airport safety including Instrument Landing System (ILS). As shown below, most components of the original scope were constructed or installed as planned. Changes of scope of other items from the original plan are logical, as they were based on the actual geographical features and soil quality and the necessity of airport operation.

1) Civil works

Table 5: Plan and Results of Outputs

Major scope	Plan	Results
1. Full parallel taxiway	30m or 23m, 168,000m ²	30m or 23m, 188,000m ²
2. Apron	1,036.5m x 137.0m	1,036.5m x 124.5m
3. Passenger terminal building	Floor area: 52,100m ²	Floor area: 52,100m ²
4. International cargo building	Floor area: 5,590m ²	Floor area: 5,600m ²
5. Domestic cargo building	Floor area: 4,340m ²	Floor area: 4,360m ²
6. Administration/Operation Building/ATC(Air Traffic Control)-Tower	Floor area: 5,160m ²	Floor area: 5,160m ²
7. Other facilities	Airfield Lighting System, Radio Nav aids, ATC Facilities, Aeronautical Communication, Meteorological Facilities and so on	Airfield Lighting System, Radio Nav aids, ATC Facilities, Aeronautical Communication, Meteorological Facilities and so on (as planned)

Source: DGCA

The table below lists the changes of scope. Most of them are changes of specifications based on

²⁰ In the project, monetary compensation was made for the assets owned by the residents including farmland. Although no particular program for the improvement of livelihood was implemented, about 100 resettled people are employed at the airport, according to the DGCA.

the site condition.

Table 6: Changes of Scope and Reasons for Change

Changes	Reasons
1. Cancellation of Nondirectional Radio Beacon (NDB) and Terminal Area Surveillance Radar	As the technology related to Radio Nav aids has advanced, a new radar system will be installed after the project.
2. Change to Rapid Exit Taxiways (Change of shape of taxiway)	To correspond to the recent rapid increase of flights
3. Addition of slope protection to the river diversion	Required by site condition
4. Revisions to storm water drainage	Required by site condition
5. Modification of horizontal alignment and modification of typical of road	Required by site condition
6. Addition of piping work for Fuel Supply System	Required by site condition
7. To enlarge the bridge and access road of VIP Terminal	Required by site condition

Source: DGCA

The substantial addition of scope is as follows.

Table 7: Added Scope and Reason for Addition

Additional scope	Reason for addition
1. Additional work for connection to the toll road	This work was needed because of the change of the route of connection part (short road), which was caused by the transfer of a collecting point of cargos from the terminal building to another place in order to make the flow of cargos smooth.
2. Expansion of the apron	Expansion was needed because the number of passengers exceeded 6 million, which was the designed capacity for the airport, in 2006, and the space of the apron became insufficient.

Source: DGCA

2) Consulting services

The planned consulting services include support to bidding, construction supervision, and technology transfer. The expected M/M of these consulting services were 514 M/M for international consultants and 1,227 M/M for local consultants.

The consulting services were conducted as planned. (There is no change of the content of services and M/M.) In addition, at the beginning of the second phase, it was confirmed that the operation of airport satisfied the national environment standard and the consulting services on environment monitoring were added to formulate necessary measures, and implemented as planned.

The performance of the consultants was highly appreciated by the implementing agency.

3.4.2 Project Inputs

3.4.2.1 Project Cost

Table 8 summarizes the planned cost of both the first and second phases (based on the appraisal documents) and the actual costs (from Project Completion Report: PCR). “Additional works” in the actual include two big additional scopes, additional work for connection to the toll road and expansion of the apron. The total cost of the project is 33.061 billion yen. This is 78% of the plan made in the first phase and the actual cost was less than planned.

The above figure, however, includes the additional scope such as additional civil works and additional consulting services and the actual cost corresponding to the original scope is 32.224 billion yen. The figure is 76% of the plan made in the first phase.

Table 8: Project Cost Table

Unit: million yen

Items	Foreign currency			Domestic currency			Total		
	Planned (1 st phase)	Planned (2 nd phase)	Actual	Planned (1 st phase)	Planned (2 nd phase)	Actual	Planned (1 st phase)	Planned (2 nd phase)	Actual
Construction works	14,367	22,970	22,261	19,651	3,050	3,138	34,018	26,020	25,399
Additional construction	n.a.	n.a.	0	n.a.	n.a.	807	n.a.	n.a.	807
Consulting services	2,554	2,143	1,982	380	383	292	2,934	2,526*1	2,274
Additional Consulting services (environmental assessment)	n.a.	n.a.	11	n.a.	n.a.	18	n.a.		29
Contingency	719	1,148	247	981	154	0	1,700	1,302	247
Land acquisition	0	0	0	0	297	1,364	0	297	1,364
Administration cost	0	0	0	0	26	121	0	26	121
Tax	0	0	0	3,866	2,985	2,820	3,866	2,985	2,820
Total	17,640	26,261	24,501	24,878	6,895	8,559	42,518	33,156	33,061

Source: DGCA

*1 This figure includes the cost of the additional consulting services.

Other notes:

(Planned: first phase)

Applied foreign exchange rate: 0.046 Yen/Indonesian Rupiah; price escalation: 2.0% (For both domestic and foreign currencies); physical contingency rate: 5%

Calculation time: April 1996

(Planned: second phase)

Applied foreign exchange rate: 0.013 Yen/Indonesian Rupiah; price escalation: 0%; physical contingency rate: 5%

Calculation time: November 2002

(Actual)

Applied foreign exchange rate: 0.012 Yen/Indonesian Rupiah (Based on the weighted average)

Here are the major reasons why the actual costs were lower than planned ones.

- Commodity prices in Indonesia had significantly increased by 2004 when the substantial

expenditure of construction cost started. In particular, the prices of materials and labor cost of construction works soared. According to the External Evaluator’s calculation, the prices of these items in Rupiah are two to three times the original plan. According to the IMF statistics, the level of commodity prices in the country increased by 134 % from 1996 to 2001.

- During this period, however, the Japanese yen appreciated by 200–300% from the time of the appraisal, and the cost measured in the Japanese yen was reduced, offsetting the increase of the cost in Rupiah.

3.4.2.2 Project Period

Based on the appraisal document of the first phase, assuming the starting date of the project is the L/A contract date and the completion date is the end of the construction (without maintenance period), the planned project period is 77 months between November 1996 and March 2003.

When the same rule is applied, the actual project period is 114 months between December 1996 and May 2006. Then the project period is longer than planned and the rate of the actual period to the planned one is 148%.

If the period of additional civil works is included, however, the project period is extended to April 2010 and the rate of the actual period to the planned one becomes 209%.

In comparing the actual and planned project period without the additional civil works, the delay period is 37 months. The detailed components of the delay are shown below. (Because of the overlapping in the delay periods, the total becomes more than 37 months if all the delay periods are simply added up.)

Table 9: Situation of Delay

Activity items	Delay
1. Employment of consultants	6 months
2. Consulting services	
2-1. Support for bidding	35 months
2-2. Supervision of civil works	No delay
2-3. Supervision of maintenance	1 month
3. Bidding of civil works	40 months
4. Construction period	No delay

Source: DGCA

The main reason for the prolonged project period is that it took considerable time before the bidding results were finalized because of the audit procedure of Indonesia’s National Board of Audit (BPKP)²¹. When the situation above is compared with the ex-post evaluation of “the New Padang Airport Construction Project”, another airport project in Indonesia, the project period of the latter was

²¹ According to JICA’s internal documents, after the bidding, BPKP conducted audit and consequently it made a decision not to approve the initial bidding results (BPKP disqualified an applicant who had a minor defect in the procurement procedure). Because of such decision, a series of discussion were held including even the Minister of Transportation and it took considerable time to reach the final conclusion. It seems that general election in Indonesia also prolonged the settlement of the issue.

extended as well and the delay factors also include the longer bidding process influenced by the audit by BPKP. BPKP’s audit itself is important, as it is the process to confirm whether the procurement was conducted appropriately by a third party. Therefore, the extension of the project period was inevitable to a certain degree. The actual delay period was, however, as long as three years and it caused the delay in both the completion of the project and the appearance of the effect of the project.

3.4.3 Results of Calculations of Internal Rates of Return (IRR)

Below is the comparison between the planned and actual Financial Internal Rate of Return (FIRR) and Economic Internal Rate of Return (EIRR).

Table 10: Internal Rates of Return

Plan	Actual
FIRR: 2.1% Cost: Construction cost, cost of operation and maintenance Benefit: Both air transport related revenue and non-air transport related revenue	FIRR: Negative Cost: Construction cost, cost of operation and maintenance Benefit: Both air transport related revenue and non-air transport related revenue
EIRR: 17.4% Cost: Construction cost, cost of operation and maintenance Benefit: Saving of operation cost, reduction of travel time, avoidance of loss of transport/passengers, avoidance of reduction of foreign currency revenue	EIRR: 22.5% Cost: Construction cost, cost of operation and maintenance Benefit: Saving of operation cost, reduction of travel time, avoidance of loss of transport/passengers, avoidance of reduction of foreign currency revenue

Source: Plan is from the ex-ante evaluation table of the project phase II and the actual is the External Evaluator’s re-calculation.

At the time of the ex-post evaluation, re-calculation of IRR was conducted by replacing the planned figures by the actual ones. In the project, the airport deals with more than expected passengers and cargos, which lead to the increase of benefit. When the situation with the project is compared to the one without it, however, the cost of operation and maintenance is also larger than planned. Particularly, in FIRR, the value of such cost increase exceeds the increased benefit, causing the negative FIRR.

In light of the above, although the project cost was within the plan, the project period exceeded it; therefore the efficiency of the project is fair.

3.5 Sustainability (Rating: ③)

3.5.1 Institutional Aspects of Operation and Maintenance

The implementing agency of the project is DGCA and the operation of the airport is conducted by the Surabaya office of the First National Airport Operation Company (AP1) as originally planned.

AP1 Surabaya has 446 permanent staff members as of January 2013 and consists of six departments such as Air Traffic Services (ATS) Operation & Readiness, Airport Operation & Readiness, “Airport Security, Safety Management Systems, Quality Management and Customer Services”, Sales, Finance & Information and Shared Services. It is the ATS Operation & Readiness

department and the Airport Operation & Readiness that are responsible for the operation and management of the airport including the maintenance of equipment and facilities in it.

Each section in the ATS Operation & Readiness department is led by a section chief with about 15 years of work experience. It also has core staff members called team leaders who have similarly long experience. As a whole, there is no shortage of staff for conducting necessary activities. The organization is also stable, as the staff’s turnover ratio is very low except for retirement at the age limit.

The structure of each section in the Airport Operation & Readiness department is essentially the same as that of ATS Operation & Readiness department: section chief with 15–20 years of work experience, and team leaders who have similarly long working experience. The department also faces no shortage of staff for conducting necessary activities, and it is stable with a low turnover ratio among the staff members.

3.5.2 Technical Aspects of Operation and Maintenance

All the staff members belonging to the ATS Operation & Readiness department and the Airport Operation & Readiness department have the engineering degrees necessary for their fields of work. They face no particular technical problems in day-to-day operations. In addition, in the ATS Operation & Readiness department, the staff’s performance is checked every six months, and any staff member who is seen to have problems attends training. In the Airport Operation & Readiness department, the staff’s competency check is undertaken as well as training every two years. Like in the ATS Operation & Readiness department, any staff member who seems to have a problem attends additional training.

Operations are conducted based on the Juanda Airport Aerodrome Manual, which is the common manual to all departments and the Standard Operating Procedure, which is the detailed manuals specific to each department.

3.5.3 Financial Aspects of Operation and Maintenance

The following table shows the movement of operation and maintenance costs (O&M costs) in the last three years. The costs are slightly increasing. Staff members of the ATS Operation & Readiness and Airport Operation & Readiness departments of AP1, Surabaya, stated that the amount of O&M costs is enough to conduct operations.

Table 11: Movement of O&M Costs

Unit: billion rupiah

Fiscal year	Budget	Results
2009	292.7	291.8
2010	301.5	306.5
2011	334.6	333.3

Source: AP1, Surabaya

The financial performance of AP1, Surabaya is good. It has continuously posted profit, e.g., as before tax profit in rupiah, 102.6 billion (2009), 132.4 billion (2010) and 197.9 billion (2011), respectively.

As the airport's profitability is secure as seen above, there seems to be no problem to secure future O&M cost. The airport operation company AP1 itself has also recorded profits continuously and its financial situation is stable²². According to the balance sheet of the entire AP1 of the last four years (2007-2010), the current ratio which means safety is much more than 100% and the equity ratio is about 90%. With regard to AP1's profitability, the ratio of operating profit divided by total asset has increased from 3.2% in 2007 to 5.8% in 2010. The company's equity ratio and the ROA (operating profit divided by total asset) are as good as those of major airport operators in the world (top 10 companies in sales)²³.

3.5.4 Current Status of Operation and Maintenance

As stated above, equipment and facilities installed in the project are maintained by the ATS Operation & Readiness and Airport Operation & Readiness departments, which actually use them, and all the equipment and facilities work well. The ATS Operation & Readiness department keeps the maintenance contracts with manufacturers of air traffic control equipment, solves problems, and procures spare parts. In the Airport Operation & Readiness department, the Airport Facilities Readiness section conducts cleaning of various facilities in the airport and the Airport Equipment section procures spare parts. There is no particular problem in procurement of spare parts.

In light of the above, no major problems have been observed in the operation and maintenance system in terms of institutional, technical and financial aspects; therefore the sustainability of the project effect is high.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The project has been highly relevant to Indonesia's development plan, development needs, as well as Japan's ODA policy; therefore its relevance is high. There are six items of target indicators which were set at the ex-ante evaluation to be met seven years after the project completion. In three out of the six target indicators (domestic passengers, domestic cargo volume, and domestic aircraft movement) actual figures of five years after substantial completion of the project have already exceeded the targets. Therefore the effectiveness of the project is high. In the impact aspect, it has been observed that the project has led to the increase of tourists in the area near the airport. Although the project cost was within the plan, the project period was exceeded, therefore the efficiency of the project is fair. The sustainability of the project effect is high, because no major problems have been observed in institutional, technical and financial aspects.

In light of the above, this project is evaluated to be highly satisfactory.

²² AP1's after-tax profit of 2010 is 443.7 billion rupiah.

²³ Source: "Kokusoken's document no.218, International comparison of financial situation of airport operation", p.2.

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

According to the environment monitoring report made in the first half of 2012, there are several items of air, water and noise whose figures exceeded the national standards set by the Ministry of Environment. Accordingly, 13 recommendations for improvement were made in the report. It has been confirmed that corrective actions were already taken for seven items and it is recommended to take corrective measures on the remaining six as well without delay.

4.2.2 Recommendations to JICA

Nothing in particular

4.3 Lessons Learned

Nothing in particular

Comparison of the Original and Actual Scope of the Project

Item	Original	Actual
1. Project Outputs		
1) Full parallel taxiway	30m or 23m, 168,000m ²	30m or 23m, 188,000m ²
2) Apron	1,036.5m x 137.0m	1,036.5m x 124.5m
3) Passenger terminal building	Floor area: 52,100m ²	Floor area: 52,100m ²
4) International cargo building	Floor area: 5,590m ²	Floor area: 5,600m ²
5) Domestic cargo building	Floor area: 4,340m ²	Floor area: 4,360m ²
6) Administration/Operation Building/ATC (Air Traffic Control)-Tower	Floor area: 5,160m ²	Floor area: 5,160m ²
7) Other facilities	Airfield Lighting System, Radio Nav aids, ATC Facilities, Aeronautical Communication, Meteorological Facilities and so on	Airfield Lighting System, Radio Nav aids, ATC Facilities, Aeronautical Communication, Meteorological Facilities and so on (as planned)
(Additional scope)		
1) Additional work for connection to the toll road	-	Surface stabilization by sand and gravel: 54,000m ²
2) Expansion of the apron	-	Earth works, pavement works and drainage work
2. Project Period	November 1996 – March 2003 (77 months)	December 1996 – April 2010 (161 months)
3. Project Cost		
Amount Paid in Foreign Currency	17, 640 million yen	24, 501 million yen
Amount Paid in Local Currency	24, 878 million yen (540.8 billion Indonesia Rupiah)	8,559 million yen (713.3 billion Indonesia Rupiah)
Total	42,518 million yen	33,061 million yen
Japanese ODA Loan Portion	27,874 million yen	27,409 million yen
Exchange Rate	1 Rupiah = 0.046 yen (As of April 1996)	1 Rupiah = 0.012 yen (Weighted average)