

Secondary Evaluation Report on Tan Son Nhat International Airport Terminal Construction Project in the Socialist Republic of Vietnam

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Profile of the Project for the Primary Evaluation

Title	Tan Son Nhat International Airport Construction Project
Objective	To meet the increasing traffic demand and to improve the convenience and efficiency of the airport users by constructing a new international passenger terminal building with associated facilities, thereby contributing the socio-economic development of Ho Chi Minh City (HCMC) in particular and the entire Vietnam in general.
Loan Amount Approved / Disbursed	22,768 million yen / 22,155 million yen
Loan Agreement Date	March 29, 2002
Completion Date	July 2007
Executing Agency	Southern Airport Corporation (SAC) (former Southern Airport Authority: SAA), Civil Aviation Administration of Vietnam

Profile of the Primary Evaluation

Type of Evaluation	Ex-post evaluation
Evaluators	Vietnamese Primary Evaluation Team for Tan Son Nhat International Airport Construction Project (Ministry of Planning and Investment, Ministry of Transport, Civil Aviation Administration of Vietnam, Southern Airport Corporation and evaluation consultants)
Period of Evaluation	January – July 2011 (Fieldwork: March 2011)
Evaluation Rating	Highly satisfactory (A) with sub-ratings of relevance=high (3), efficiency=high (3), effectiveness with impact=high (3), and sustainability=high (3)

1. Framework of Secondary Evaluation

1.1 Background and Purpose of the Secondary Evaluation

This secondary evaluation is part of the Vietnam-Japan Joint Ex-post Evaluation Program, collaboration between Ministry of Planning and Investment (MPI) and Japan International Cooperation Agency (JICA) for evaluation capacity development in Vietnam. Every year since the Program started in 2007, a couple of Japanese ODA loan projects have been evaluated in their ex-post stages by project-wise joint evaluation teams consisting of the Vietnamese and Japanese evaluators. Year by year, the responsibility on the Vietnamese side has become larger. In JFY2010, evaluation ownership was further transferred to the Vietnamese side, which is now expected to plan, manage, implement and use evaluations on their own, by introducing the two-step evaluation as follows:

- STEP 1 - Primary evaluation conducted by the Vietnamese evaluation team consisting of project-related organizations and external evaluators (national consultants) with guidance and suggestions by the Japanese secondary evaluator; and
- STEP 2 - Secondary evaluation or evaluation of the primary evaluation. Secondary evaluation is conducted by the Japanese secondary evaluator.

There are two major purposes of the secondary evaluation:

- (1) Evaluation capacity development of the Vietnamese government officials and consultants through verification of their evaluation process and reports; and
- (2) Ensuring JICA's accountability by validating the evaluation judgment made in the primary evaluation from the viewpoint of the JICA's evaluation criteria.

1.2 Scope of the Secondary Evaluation

The object of this secondary evaluation is the ex-post evaluation of Tan Son Nhat International Airport Construction Project, the primary evaluation.

1.3 Methodology¹

To serve the above purposes, the secondary evaluation was designed to answer the two major evaluation questions:

- (1) Is the process and results of the primary evaluation good? (quality control)
- (2) Is the evaluation judgment valid considering the evidence presented? (accountability)

For the quality control, the secondary evaluator reviewed the process and report of the primary evaluation based on a pre-defined checklist. For validation of the evaluation judgment, the secondary evaluator reviewed the findings presented in the primary evaluation report in the light of the JICA's evaluation criteria and sub-criteria for Japanese ODA loan and grant projects. For these purposes, the secondary evaluator joined the primary evaluators on meetings to design and process the primary evaluations as well as the field trip.

The secondary evaluator reviewed the primary evaluation report twice -- the first draft and final draft -- and shared the review results with the primary evaluation team, which then improved the quality of the draft.

Checklist for Quality Control of Evaluation Process and Results

I Evaluation Process	1. Schedule, Budget and TOR (1) Appropriate scheduling, (2) Adherence to schedule, (3) Budget, (4) Adequateness of TOR, (5) Adherence to TOR
	2. Evaluation Design (1) Logic model, (2) Evaluation questions, (3) Data collection, (4) Information and data management
II. Evaluation Report	3. Background (1) Evaluation purpose and methods, (2) Evaluators, (3) Necessity of Project, (4) Output, outcome and impact
	4. Evaluation on Relevance Quality of the report: (1) National development strategy (2) Sector policy, (3) Comparability, (4) Development needs, (5) Japanese ODA policy Comments on Value Judgment
	5. Evaluation on Efficiency Quality of the report: (1) Details of output, project period and project cost, (2) Output, (3) Project period, (4) Project cost Comments on Value Judgment
	6. Evaluation on Effectiveness Quality of the report: (1) Evidence, (2) Selection of evidence, (3) Reasons, (4) IRR Comments on Value Judgment

¹ References: JICA References on Ex-post Evaluation; Western Michigan University, Evaluation Checklists (<http://www.wmich.edu/evalctr/checklists/>); Secondary Evaluation by the Advisory Committee on Evaluation (http://www.jica.go.jp/english/operations/evaluation/reports/2007/pdf/2007_04_01.pdf)

	7. Evaluation on Impact Quality of the report: (1) Evidence, (2) Beneficiary, (3) Environment, (4) Land acquisition and resettlement Comments on Value Judgment
	8. Evaluation on Sustainability Quality of the report: (1) Institutional arrangement, (2) Staffing, (3) Technological level, (4) Source of O&M budget, (5) Amount of O&M cost and O&M budget, (6) Maintenance activities Comments on Value Judgment
	9. Conclusion, Recommendations, and Lessons Learned Quality of the report: (1) Representation, (2) Feasibility of recommendations, (3) Concreteness of recommendations, (4) Relevance of recommendations, (5) Feasibility of lessons learned, (6) Relevance of lessons learned
	10. Overall Quality of the report: (1) Consistency across sections, (2) Data table, graph and photos, (3) Data source, (4) Description of social survey, (5) Limitation of the evaluation, (6) Deviation from rating criteria, (7) Protection of personal information

1.4 Constraints and Limitation of this Secondary Evaluation

None.

2. Evaluator

Keishi Miyazaki, OPMAC Corporation

3. Summary of the Primary Evaluation Results by Vietnamese Evaluation Team

(1) Relevance. This project has been highly relevant with the country's development plan, development needs as well as Japan's ODA policy, therefore its relevance is high.

(2) Efficiency. Both project period and project cost were mostly as planned/ within the plan, therefore efficiency of the project is high.

(3) Effectiveness. This project has largely achieved its objectives, therefore its effectiveness is high. Since it started operation in 2007, Tan Son Nhat Airport International Terminal has responded positively to the increasing demand of international travel of Vietnamese and foreign passengers. The volume of passengers traveling in and out Vietnam through TSN International Airport was recorded at 7,025,398 in 2010, which was 31% higher than the projected volume of 5,362,000. The annual average growth rate of number of passengers traveling through TSNA International Terminal between 2007 and 2010 was 15% which was also higher than estimated at the time of feasibility study (i.e. 14.2%). The number of international flights at TSN International Airport was recorded at 44,140 in 2010, increased by 11,400 flights/year in comparison to 2005.

Not only the handling capacity of the airport was improved after the project, convince for the airport users was also improved. The types of non-aviation services provided and number of service providers at TSN International Airport increased remarkably. According to the results of beneficiary survey to the passengers (total 123 respondents), most of the passengers were satisfied (48%) and highly satisfied (39%) with the airport facilities. In addition, the security of the airport was improved by modernization of the security devices such as scanning machines and magnetic gates. The financial internal rate of return was re-calculated to be 24.1%, which

was higher than the calculation in the appraisal (7.1%). Similarly the economic internal rate of return was re-calculated to be 35.9%, which was higher than the calculation in the appraisal (19.1%).

(4) Impact. A number of positive impacts were observed. They were (i) financial contribution to the state budget and revenue of HCMC through tax payment, (ii) impact on improved accessibility in the urban transport network, (iii) impact on promoting of economic development in HCMC in general and the tourism sector in particular, and (iv) contribution to the development of aviation sector in Vietnam.

Regarding the environment impact, the results of environment monitoring on the air quality inside and around the airport, noise level, water quality in and around the airport's waste water treatment facility says that they were within the permitted level against the Vietnamese environmental regulation and standards.

(5) Sustainability. No major problems have been observed in the operation and maintenance system, therefore sustainability of the project effect is high.

(6) Conclusion. In the light of the above, this project is evaluated to be (A) highly satisfactory.

(7) Recommendations. SAC should effectively cooperate with the People's Committee of Ward 2 of Tan Binh district, and concerned authorities of HCMC such as Department of Transportation, Traffic Police Force and many other concerned agencies to regulate and monitor the operation of taxi companies in and outside the airport area.

(8) Lesson learned. (i) working safety should be strictly monitored and enforced, (ii) when the O&M agency of the project directly involves in the project implementation, this practice generates a number of advantages including the capacity development of staff and promotion of accountability, and (iii) creating fair competition environment would ensure the quality of services.

4. Summary of the Secondary Evaluation Results and Recommendations

As the primary evaluation satisfied most of the check points, the evaluation process and the quality of the report are evaluated as satisfactory. In the draft primary evaluation report, there were rooms for improvement in some aspects such as modification of the chapter of relevance, efficiency, lessons learned and schedule control of the evaluation process, but these issues were settled in the course of finalization process of the primary evaluation report.

The value judgment made in the primary evaluation is valid considering the evidence. Therefore, the evaluation rating results judged by the primary evaluator (i.e. Overall rating: Highly satisfactory (A) with sub-ratings of relevance: high (3), efficiency: high (3), effectiveness with impact: high (3), and sustainability: high) are reasonable and acceptable.

5. Analysis of Process and Report of the Primary Evaluation

Verification of the Evaluation Process

5.1 Schedule, Budget and TOR

The brief overall evaluation schedule was drafted by the Japanese secondary evaluator, and the Vietnamese primary evaluation team refined it and prepared a detailed work plan with interim deadlines in each step of evaluation. The overall period of the primary evaluation was

approx. eight months from November 2011 to July 2011. Although enough time was allocated for the primary evaluation, interim deadlines were sometimes not kept due to overload of team members.

The cost for the primary evaluation was shared by the Japanese side (remuneration for consultants, cost for trainings, meetings and workshops, vehicles during the field work) and the Vietnamese side (travel expenses for trainings, meetings, workshops and fieldwork). There was no major problem in the amount of the budget for conducting the primary evaluation.

As mentioned above, the Vietnamese evaluation team was supposed to manage, not only implement, the primary evaluation. TORs were prepared separately for the “management team” and the “implementation team”, the newly-introduced sub-division of the Vietnamese evaluation team in response to the increased tasks on the Vietnamese side. The TOR for the implementation team was clear for both the government members and consultants, while the TOR for the management team was not fully understood by some members from the government (i.e. they interpreted that the only task for the management team was to attend a few workshops and acknowledge the draft evaluation report, while there were many other tasks of schedule and quality control had been assumed). This was possibly because evaluation management was still new in Vietnam, though the legal framework (such as No. 131/2006/ND-CP) provides outsourcing of project evaluation to external evaluators. However, the coordination between the management team and implementation team was comparatively better than the hydropower team² because an evaluation advisor of MOT was acting as a representative of the management team in case of Airport team.

5.2 Evaluation Design

At the beginning of the evaluation design, the primary evaluation team developed the logic model of the project. Then, they identified evaluation questions and data collection strategy to answer each question in a format of evaluation planning framework.

In the first draft of their evaluation planning framework, there was some confusion in logical sequence between goal, purpose and outcome and setting up their appropriate indicators. Later, the problem was fixed and the logic model improved much to a sufficient level. Likewise, the evaluation questions became more to the point as they repeated discussions and with suggestions from the secondary evaluator.

Data sources were very detailed and realistic because the team consisted of members who have been involved in the project implementation or knew well about it. This is an advantage of this kind of (partial) internal evaluation. In addition, the team deployed a wide range of data collection tools such as a questionnaire survey to project related agencies and local government, a beneficiary survey (semi-structured interview survey) to the airport users including 123 passengers and 53 staff/companies working in the airport, focus group to local community.

Verification of the Evaluation Report

5.3 Background

The format of the primary evaluation report was taken from that of JICA project evaluation, which does not have distinct sections on evaluation purposes and methods in individual reports (instead, JICA includes them in its annual evaluation report as common information to all project evaluations). If the Vietnamese side is to publicize the primary evaluation reports as a stand-alone document, the evaluation purposes and methods should be added to the report.

² In parallel with the primary evaluation of Tan Son Nhat International Airport Construction Project, Dai Ninh Hydropower Project (1)(2)(3) was evaluated by the Vietnamese Primary Evaluation Team for Dai Ninh Hydropower Project (i.e. hydropower team) consisted of the representatives from Ministry of Planning and Investment, Ministry of Industry and Trade, EVN, Project Management Board No.6 of EVN, Dai Ninh Hydropower Company of EVN, and evaluation consultants.

Other essential background information such as the evaluators as well as the project outlines are all presented in the report.

5.4 Relevance

The relevance section is satisfactory.

In the policy aspect, the report shows relevant sections of the Socio-Economic Development Plans and Master Plans for Civil Aviation at the times of both ex-ante and ex-post evaluations as the development policies that have supported the project.

In the needs aspect, the report shows the necessity of the project referring the trend of international and domestic passenger demand as well as the role and status of Tan Son Nhat International Airport in the civil aviation sector in the southern Vietnam before and after the project, which indicates the continuing needs for airport sector development.

5.5 Efficiency

The efficiency section is satisfactory.

The description of the outputs and inputs (project period and project cost) is precise and the reasons for differences between "Plan" and "Actual" explained appropriately.

5.6 Effectiveness

The effectiveness section is satisfactory.

The report appropriately presents the evidences such as no. of passenger, no. of flights, no. of non-aviation services and beneficiary survey results to the airport users which are direct and valid in verifying the intermediate outcomes.

The report also clearly explains reasons for an increase/decrease in each outcome indicators (e.g. a creating a fair competitive environment by SAC as an influencing factor to improving quality and quantity of non-aviation services).

The re-calculation of financial internal rate of return (FIRR) and economic rate of return (EIRR) comparison of it with the planned value is well presented with the appropriate reasons for the differences between the planned and re-calculated value.

5.7 Impact

The efficiency section is satisfactory.

The evidences the evaluation team selected (i.e. tax revenue from the airport, connectivity in urban transport network, GDP growth, No. of FDI, No. of tourist, revenue from tourism sector, etc.). The evaluation team tried to grasp the cause and effect relationship between the socio-economic impacts and the project such as (i) tax contribution to HCMC, (ii) improvement of connectivity in urban transport network, (iii) promoting economic activities in HCMC in general and in tourism sector in particular, and (iv) development of aviation sector in Vietnam from the different angles and perspectives referring the statistical data, the official documents, key informant interview results, and geographic atlas. Even though the report could only tell the project partially contributed to the observed positive changes (i.e., analysis of attribution is difficult within the framework of this joint evaluation) except the impact of (i) tax contribution to HCMC, the evidences are valid to assess the intended impact of this project.

The beneficiary of this project is clear from the report; the first direct beneficiaries of this project are airport users such as passengers and companies, organization and staff who are engaged in the airport. But in a broader sense, the beneficiary can be expanded to HCMC and the southern region of the country.

Regarding the environmental impact, the comprehensive environmental monitoring results together with respective environmental parameters in comparison with the Vietnamese standard

are well presented. Also the results of focus group and interview to the local community regarding the noise issue are presented.

Since there was no land acquisition and resettlement in this project, the land acquisition and resettlement issues is not examined in this report.

5.8 Sustainability

The sustainability section is satisfactory.

The report clearly states the organizational setting for operation and maintenance of the facilities built by the project. The evaluation of technical levels of operation and maintenance staff is relevant with the information on technical capacity of affiliated company of SAC in charge of O&M of the project facilities.

Regarding the financial aspect, the source of O&M budget (revenue from the airport) is explained together with the O&M cost, but according to the estimation by SAC, the sustainability of securing the O&M budget seems to be no major problem.

Maintenance activities are described by types of airport terminal facilities with the information of responsible names of sections, department and affiliated companies. Also the report mentions that the O&M activities are conducted in compliance with the SAC manuals.

5.9 Conclusion, Recommendations and Lessons Learned

A recommendation addressed to SAC is clear understandable which is supported by the evaluation findings presented in the main body. If the time frame for realising the contents of recommendation can be set, this recommendation will be easier to monitorable.

The lessons learned for "Working safety" is too general and difficult to replicate to other projects. It requires further analysis on why such strict safety regulation was able to be applied to this project, what type of safety measures and procedures were taken in this project, and whether the same safety condition is applicable to other projects, etc. The other two lessons are detailed and may provide a useful implication to the other projects.

Lastly, there is a difference in the concepts of recommendations and lessons learned between what they are written in the primary evaluation report and the JICA's reporting guideline of ex-post evaluation. According to the JICA's guideline, the recommendation is a suggestion for this project (i.e. target project evaluated) and the lessons learned is a suggestion for other project. However, the secondary evaluator accepts the way of recommendations and lessons learned in the primary evaluation report as long as their suggestions are reasonable and relevant.

5.10 Overall

The information in background, body sections, and a comparison table (attached to the end of the report) are consistent. Data tables, graphs and photos clearly support the argument. The value judgement for each evaluation criteria is appropriately done with the support of evidences.

6. Satisfaction of Vietnamese Government on Special Yen Loan³

6.1 Ministry of Transport (Line Agency of the Project)

(1) Selection of Contractors and Project Costs

MOT answered that (i) the number of participants for Pre-Qualification and bidding process for the contracts of the project was smaller than expected in comparison with the similar project and (ii) the lowest bid price over officially approved cost estimate ratio was larger than normal case in Vietnam. They were because of the following conditions of Special Yen Loan: (a) the condition of tying to Japanese contractor limited the choice of the qualified contractors, (b) the condition of tying to Japanese contractor limited the price competition, and (c) the condition of minimizing procurement from Japanese origin pushed up the price. MOT addressed the necessity for relaxing the condition of minimizing procurement from Japanese origin for the future project under the Special Yen Loan scheme.

(2) Quality of Contractors

Regarding the level of quality of the prime contractor, the evaluation of MOT was (i) fully satisfied with the schedule management, (ii) significantly satisfied with technological quality, (iii) significantly satisfied with overall project management, and (iv) fully satisfied with structure and facilities constructed under the project. Also MOT was significantly satisfied with the level of technical, implementation, operation and maintenance capacity of the sub-contractors.

7. Attachment

Primary Evaluation Report on Tan Son Nhat International Airport Construction Project

³ This project was implemented utilizing the Special Yen Loan (SYL). SYL was introduced by the Government of Japan in 1998 as one of the financial relief measures for Asian countries suffered from the Asian economic crisis. SYL was to provide concessionary financial assistance for the development of infrastructures in the fields of transportation logistics, foundation for productive facilities and large-scale disaster prevention. The terms and conditions of SYL is set at greater concessionary level than standard terms and conditions of ODA loans, while the eligibility of the prime contractors under SYL is limited to Japanese nationals or judicial persons and procurement of goods and services under SYL is tied to Japanese goods and services (goods and services whose country of origin being other than Japan can be procured up to no more than 50% of the total loan amount).

1. Project Description



TSN Airport International Passenger Terminal

1.1 Project Outline

Tan Son Nhat (TSN) International Airport was built under the French colonial time with only one north-south runway. Before 1975, the USA expanded the airport with two runways (each of those had a length of approximately 3,000 meters, laying east-west direction). At that time, the airport was mainly for military purposes.

Since 1975, after a long time of utilization, expansion and improvement, the total area of TSN terminal building was approximately 30,000m² by 2000 with its handling capacity of 5 million passengers per year. During that time, TSN airport met traffic demand of Ho Chi Minh City (HCMC), and was an important gateway to southern region of Vietnam.

However, with the increasing number of passengers and cargo through TSN airport, especially with the increasing number of international passengers, which is expected to reach 5 million in 2010 and 9.4 million in 2020, a new international terminal building becomes a urgent requirement. “The Feasibility Study on International Passenger Terminal Area Development Project in Tan Son Nhat International Airport” was implemented by JICA in March 2000.

1.2 Project Objectives

The objective of the “Tan Son Nhat Airport International Passenger Construction” project is to meet the increasing traffic demand and to improve the convenience and efficiency of the airport users, being capable to receive 8.3 million passengers in 2010 and 15.5 million passengers by 2020, by constructing a new international passenger terminal building with associated facilities at the Tan Son Nhat Airport, thereby contributing the socio-economic development of Ho Chi Minh City (HCMC) in particular and the entire Vietnam in general.

Table 1: Logical Framework Applied for Ex-Post Evaluation

Goal	<ul style="list-style-type: none"> ▪ To contribute to the socio-economic development in HCMC and in Vietnam ▪ To contribute to the development of the aviation sector in Vietnam
Purpose	<ul style="list-style-type: none"> ▪ To meet the increasing demand transportation through TSN International airport ▪ To improve the convenience and efficiency of the airport users
Outcomes	<ul style="list-style-type: none"> ▪ Increased number of passengers travelling through Tan Son Nhat international airport ▪ Increased handling capacity of the terminal ▪ Increased the variety of services provided at the terminal by other service providers ▪ Increased number of airlines using TSN Airport
Outputs	<ul style="list-style-type: none"> ▪ International passenger terminal building: ▪ Civil work: ▪ Special equipments: ▪ Airport utilities: ▪ Aircraft fuel hydrant system: ▪ Consulting services ▪ Auditing service
Inputs	<ul style="list-style-type: none"> ▪ Total cost: 26.786 Mil. Yen ▪ ODA loan (Loan agreement No.VNIX-2): 22.768 Mil. Yen <i>In which:</i> <ul style="list-style-type: none"> • JPY portion: 18.345 Mil. Yen • VND portion: 8.441,6 Mil. Yen (equivalence) ▪ Counterpart fund: 4.018 Mil. Yen (based on June 2001)

Table 2: Summary of Project description

Approved Amount/Disbursed Amount	22,768 mil. JPY / 22,155 mil. JPY
Exchange of Notes Date/ Loan Agreement Signing Date	29/3/2002
Terms and Conditions	<ul style="list-style-type: none"> ▪ Interest rate: 0.95% p.a (0.75% p.a for Consulting services) ▪ Repayment Period: 30 years ▪ Grace Period: 10 years ▪ General Tied
Borrower / Executing Agency(ies)	The Government of Socialist Republic of Vietnam / Civil Aviation Administration of Vietnam / Southern Airports Corporation
Final Disbursement Date	July 2008
Main Contractor (Over 1 billion yen)	JV: Kajima-Taisei-Obayasi-Maeda (KTOM)
Main Consultant (Over 100 million yen)	Japan Airport Consultants, Inc.
Feasibility Studies, etc.	"The Feasibility Study on International Passenger Terminal Area Development Project in Tan Son Nhat International Airport" by Japan Airport Consultants, Inc. March 2000.
Related Projects	None

2. Outline of the Evaluation Study

2.1 Evaluators

The Vietnam-Japan Joint Evaluation Team 2010 consisted of two Working Groups, each of which evaluated different projects. This project was evaluated by the Airport Group. Due to the design of this IP2010, in each Group, there are two sub-groups/teams including the Management Team and the Implementation Team, as following:

Management Team

1	Trần Tường Lân	Ministry of Planning and Investment
2	Nguyễn Ngọc Hải	Ministry of Transport
3	Đỗ Tất Bình	Southern Airports Corporation
4	Cao Mạnh Cường	Ministry of Planning and Investment
5	Nguyễn Dương	Civil Aviation Administration of Vietnam

Implementation Team

1	Trương Quang Hưng	Ministry of Planning and Investment
2	Đỗ Đức Tú	Ministry of Planning and Investment
3	Cao Thanh Phú	Ministry of Planning and Investment
4	Nguyễn Công Hoàn	Southern Airports Corporation
5	Võ Toàn Thắng	Southern Airports Corporation
6	Đoàn Nhã Trúc	Southern Airports Corporation
7	Trần Thị Thu Hà	Southern Airports Corporation
8	Nguyễn Trường Thi	Southern Airports Corporation
9	Đinh Xuân Trí	Southern Airports Corporation
10	Nguyễn Thị Hồng Thúy	Civil Aviation Administration of Vietnam
11	Trần Lê Trà	National consultant / PeaPROs
12	Lê Quang Trung	National consultant / PeaPROs

2.2 Duration of Evaluation Study

- Duration of the Study: from November 2010 to July 2011
- Duration of the Field Study: March 2011

2.3 Constraints during the Evaluation Study

- The Project Completion Report (PCR) was not prepared at the time of ex-post evaluation.
- At the end of the collecting information field study, end of April 2011, the data of passengers by the purposes of travelling (tourist, trade, other) was not ready by the Immigration police.

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

3.1 Relevance (Rating: 3)

3.1.1 Relevance with the Development Policies of Viet Nam and Ho Chi Minh City (HCMC)

At the time of project appraisal, Resolutions of the Party's Central Committee VIII and IX on social-economic development and international integration; National Development Strategy 2001- 2020 emphasized: "Development of infrastructure, including the infrastructure for transportation, is in the highly prioritized list of the country". The Resolutions are now still applicable.

SEDP (2001-2005) also set a target "Increase economic development investment capital... gradually improve infrastructure systems... strengthen the State corporations as a base for the powerful economic groups in some sectors of the national economy such as telecommunication, aviation, petrol...". At the time of evaluation, the SEDP 2006-2010 stated: "Establish new towns and highways, and ... modernize international airports... in the Southeasten region."

In addition, during project implementation, SEDP 2006-2010 of Ho Chi Minh city, considered as the guidelines for city development, highlighted: "Strong improvement of investment environment; Strengthen capacity for attracting FDI, Development of Southern Economic Zone; Improvement of transportation infrastructure".

In terms of consistency with sectoral development strategy, at the time of appraisal, Decision 911/TTg dated 24/10/1997 indicated: to the year 2000, upgrade and modernise the International Airports of Noi Bai, Da Nang and Tan Son Nhat. At the time of evaluation, Decision 101/QĐ-TTg (dated Jan 22, 2007) of the Prime Minister on Master Plan for Transportation of HCM City to 2020 and beyond also stated: "Modernize the city's network of transportation (roads, marine lines, railways, airways), ensuring the city's stable and balanced development, making HCM city a national socio-economic development center, a key factor for the development of the southern economic zone and a trading and service center of ASEAN".

Decision 21/QĐ-TTg (dated Jan 08, 2009) on Master Plan for the development of Civil Aviation to 2020 and Vision to 2030 determined:

- Develop aviation infrastructure, focusing on advanced technology.
- Network of airports:
 - *To 2020: Develop the network of airports with Hà Nội, Đà Nẵng, Hồ Chí Minh city as the 3 most important points for domestic and international aviation transportation.*
 - *To 2030: Continue to develop the existing airports, especially the 10 international airports (Nội Bài, Cát Bi, Phú Bài, Đà Nẵng, Chu Lai, Cam Ranh, Tân Sơn Nhất, Long Thành, Cần Thơ, Phú Quốc)*

As planned, TSN International Airport plays the central role for international and domestic aviation transportation of the southern region, and reaches Level 4E (ICAO standard): accommodating B747-400 or equivalent; its capacity reaches 17 million passengers per annum and 300,000 tons of cargo per annum by 2015.

Prime Minister's Decision 589/QĐ-TTg (dated May 20, 2008) on regional planning of HCMC until 2020 and beyond clearly stated that the "TSN international airport in 2020 will be the global and regional airport hub, which should be upgraded by 2010 to receive 9 million of passengers, and by 2020 to receive 20 million passengers".

Besides, from now until the Long Thanh airport is completed, TSN airport will be upgraded to serve the expected 20-25 million passengers per year. According to the approved plan, Long Thanh will be operated in 2020. After 2030-2035, the operation of TSN airport will be re-calculated and adjusted.

Therefore, the construction of TSN airport international terminal building is consistent with national development policy of Vietnam and HCMC.

3.1.2 Relevance with Development Needs of Passenger Aviation Transportation of Vietnam and HCMC

At time of project preparation, international passengers traveling to Vietnam was 1.8 million per year (1998), increased when compared to 1.6 million passengers in 1996, of which 62% immigrated through airport¹. Passengers through the TSN international airport was expected to increase of 15% per year (see **Table 3**). By 2007-2008 the number of passengers would reach and exceed the maximum capacity of the old terminal (appx. 7 million passengers/year, including domestic and international passengers). In addition, the aged facilities of the old terminal, some of those were installed since 1975, would need to be replaced to meet requirements of modern ones. Thus, the new terminal building is needed.

Table 3: Number of International and Domestic Passengers going through TSN Airport

Unit: 1,000 persons

Passenger		2001*	2005	2007	2008	2009	2010	2015	2020
International	Est		3,284	4,231	4,828	5,077	5,362	6,973 ⁱ	9,380 ⁱ
	Est. by SAPROF [03/2001]		3,284	3,996	4,407	4,861	5,362	6,973	8,962
	Act	2,557	4,312	5,603	6,068	5,943	7,025	10,198 ⁱⁱ	14,579 ⁱⁱ
Domestic	Est		2,620	3,068	3,292	3,483	3,740	5,111 ⁱ	6,413 ⁱ
	Act	1,760	3,033	4,684	5,658	6,787	8,031		

Source: Southern Airport Corporation (SAC), F/S

Note:

- Est.: Estimated number (in F/S); Act.: Actual number (SAC)
- * Project appraisal time (year)
- i: Estimated in F/S,
- ii: Re-estimated at 2010, based on updated conditions

At the time of evaluation, according to statistics from Southern Airports Corporation with passenger growth as at present, in the coming 2-3 years, TSN international airport is expected to reach its full capacity. Thus, the next phase is planning to expand the terminal to meet the transportation demand by 2020-2025. The terminal's facilities continue to be utilized for passengers. The demand for expanding TSN airport international terminal still remains high.

Thus, the construction of the TSN international terminal building is consistent with the development needs of Vietnam and HCMC.

3.1.3 Relevance with Japan's ODA Policy

At the time of appraisal, according to Japanese government aid policy, objectives for operations in Vietnam were (i) support for macro-economic stability, (ii) support for the transitional economy, (iii) support for economic infrastructure development, (iv) support for human resource development, (v) support for social issues and (vi) support for environmental protection. In particular, regarding (iii) support for economic infrastructure development, priority was given to the power, transport and environmental sectors.

This project has been highly relevant with the country's development plan, development needs, as well as Japan's ODA policy. Therefore the project's relevance is high.

3.2 Efficiency (Rating: 3)

3.2.1 Project Outputs

The main works of the project is the construction of the international passenger terminal,

¹ Final Report, Special Assistance for Project Formation (SAPROF) for Tan Son Nhat International Airport Terminal Development Project, JBIC, 2001, p.25.

which was originally designed to be 75,000 sqm with associated facilities. Besides, there are other important works such as roads system, parking area, ground area, etc. Sets of equipments that support airport users, including passengers and people working in the airport, were purchased, installed and used. Besides, the project has built capacity for the operation and maintenance staff to improve the effectiveness and sustainability of the project. Most of the outputs, though having some changes in some work items, have been completed as planned. **Table 4** compares the outputs as planned and the actual output.

The floor area of the new international terminal is increased significantly. Together with an increase in floor area and number of floor, the amount of equipments and facilities is also increased. During the design stage, it was realized by actual situations that the volume of passengers has increased significantly compared to the estimation. Therefore, the terminal's design was changed to add one more mezzanine and the wing-2 to the terminal to: i) increase the capacity of the airport terminal, ii) improve the smoothness of the passenger flows inside the terminal by separating departure and arrival flows of passengers, and iii) to eventually increase the commercial area for the terminal. The installation of the wing-2 resulted in the putting in additional 2 sets of passenger boarding bridges.

Considering the site clearance area, it is the fact that the land area is designated to the airport. Therefore there was no resettlement and compensation for land clearance has been made. Thus the difference in area only means the estimated and actual area of land that was clear. No compensation or resettlement has to be made.

Table 4: Comparison of Planned and Actual Outputs

Key outputs	Plan	Actual
1. Terminal facilities		
▪ Number of floors	3 floors	3,5 floors
▪ Total floor area	~ 75,000 m ²	93.000 m ²
▪ Area of Site clearance	150,000 m ²	129,000 m ²
2. Special equipments		
▪ Baggage handling system	2 sets	Same as planned
▪ Passenger boarding bridge	6 sets	8 sets
▪ Flight information display system	1 system	Same as planned
▪ Escalator	9 sets	18sets
▪ Elevator	14 sets	20 sets
▪ Security system		
▪ X-ray equipment	16 sets	Same as planned
▪ Arch-shape metal detector	10 sets	Same as planned
▪ Common use terminal equipment (CUTE)	1 system	Same as planned
3. Civil work		
▪ Road	~ 41,000 m ²	- Area of Road: 55.000 m ² -Car park Area: 23.000 m ² -Area of GSE lanes and parking: 13.000 m ² - Viaduct: 10.540 m ²
▪ Car park	~ 34,000 m ²	
▪ Ground Service Equipments (GSE) lanes & parking	~ 32,000 m ²	
4. Aircraft fuel system		
▪ Pipes system	3,500m ØK 14"	Same as planned
▪ Other system	06 tunnels with 27 valves controlled by motor	Same as planned

Key outputs	Plan	Actual
5. Airport utilities		
▪ Electricity supply	1 system	Same as planned
▪ Internal lighting	1 system	Same as planned
▪ External light	1 system	Same as planned
▪ Telephone	1 system	Same as planned
▪ Water supply <ul style="list-style-type: none"> ○ <i>water tanks</i> ○ <i>pumps</i> ○ <i>pressurized tank</i> 		- 2 sets - 4 sets - 2 tanks
▪ Clean water treatment system		1 system
▪ Waste water treatment system		1 system
▪ LPG system		1 system
▪ Solid waste treatment	N/A	N/A
▪ Other utilities (see attached file)		
6. Consultancy		
▪ Detailed design	Foreign: 116 MM Việt Nam (133+200)MM	Foreign: 128 MM VN: 117 MM
▪ Assistance in tendering	Foreign: 33 MM VN: (31+70) MM	Foreign: 21 MM VN: (7+32)MM
▪ Construction supervision	Foreign: 285 MM VN: (344+197) MM	Foreign: 378 MM VN: (398+437) MM
▪ Maintenance Supervision) (including environmental management and supervision during the warranty period)		Foreign: 33 MM VN: (25+49) MM

Consultancy works was also changed. Workload of consultancy service changed due to: i) the detailed design was package contract. Thus, the number of man-months could be changed, but the total contract value remained unchanged; ii) for the bidding process, because the Southern Airpot Corporation (SAC) supported to prepare bidding documents and procurement, the workload for procurement reduced, and iii) for construction supervision, the man-months was estimated, the paid workload was based on the actual work. According to the original design, maintenance supervision was not specifically determined and was only calculated for one year of 2007 after the completion of the project. In the implementation process, SAC signed a contract with consultants to perform this work in two-year warranty (2007-2009). The workload was calculated based on actual records.

It should be noted that during the implementation of the project, which was equivalent to 16 million hours of labour, there was no such serious accident that caused death or major injury happened. That dued to the strict monitoring and application of labour safety regulation of all involved operational and management entities.

Following are selected pictures of the project, from construction period until the completion.

During the construction



8th Month _ Pic - 02 (Apr 2005)



8th Month _ Pic - 04 (Apr 2005)

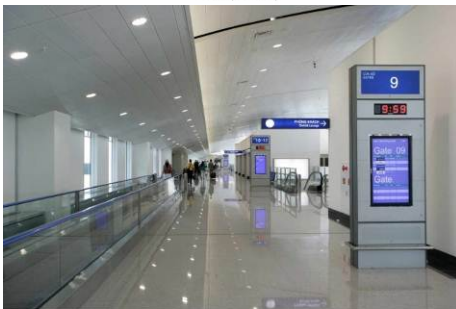
After the project's completion



PTB (Exterior)



2F Check-in Lobby



2F Departure Concourse



CIP Lounge



Handicapped Users' Toilet



GF Baggage Handling Area



Chiller Room



LV Room

3.2.2 Project Inputs

3.2.2.1 Project Implementation Period

The project duration was defined as from the signing of the Loan Agreement to the date when three parties (Project Owner, Consultant, and Contractor) sign the Handover Minutes. The total actual project implementation was 64 months (from March 2002 to July 2007), which is only 5% longer than planned 61 months (originally planned from December 2001 to December 2006). **Table 5** below shows the major periods during project implementation.

Table 5: Comparison of Planned and Actual Project Implementation Period

Major works	Planned	Actual
Total project implementation	End of 2001 – 12/2006 (61 months)	3/2002 – 7/2007 (64 months)
Signing of L/A	Expected by 12 / 2001	3 / 2002
Selection of consultants	Beginning 2002 – Mid 2002	3/2002 – 9/2002
Detailed design	Mid 2002 – Mid 2003	7/2002 – 9/2003
Selection of contractor(s)	Mid 2003 – Mid 2004	12/2002 – 8/2004
Construction works	Mid 2004 – 12/2006	8/2004 – 7/2007
Consultant services	Mid 2002 – 12/2006	9/2002 – 7/2009
Auditing	Not defined	2/2007 – 12/2007
Project completion*	12/2006	26/7/2007

Even though the project implementation period was three months (5%) longer than planned, the volume of works was significantly increased (e.g. the total floor area was increased from 75,000m² to 93,000m², equivalent to 24%). Therefore it can be said that the project could have been completed even earlier than planned if there was no such changes in the design and during the implementation.

During the project implementation, the Project Management Unit had requested the contractors to re-schedule all the remaining work items and commit to meet the approved time table.

Other work items were implemented in accordance with the original time frame. The project was slightly longer than planned.

3.2.2.2 Project Costs

The situations in reality show that the number of passengers going through TSN airport has increased much faster than previously forecasted. In order to meet the demands as well as creating more commercial areas for the airport, the terminal's design was changed to add one more mezzanine and the wing-2 to the terminal. Also, additional equipments were added to ensure the proper and smooth operation of the terminal, to increase quality of services, and to ensure the security and safety of the terminal. In general, the quantity of the purchased packages remained unchanged. Only the quantity of items in each of the packages were increased.

There were differences between planned and actual costs due to the scope changes during the project implementation: increased floor area together with increased equipments. Besides, annual costs also differed by each year due to the changes in construction scope and in terms of implementation and disbursement rates of progress. The final payment settlement of the project took longer time than expected as the procedures must follow the government's regulations on approval of new unit rates, unexpected costs, and verification of other variation work items.

During the project preparation stage, the estimation of the total investment was rough. After having the basic design, the employer (SAC) worked with the consultant to re-calculate the project cost items based on the updated quotations. Costs for each item were then re-calculated more precisely.

Table 6: Comparison of Planned and Actual Project Costs

Unit: Mil. JPY

Items	Plan						Actual					
	Foreign currency		Local currency		Total		Foreign currency		Local currency		Total	
	Total	ODA loan portion	Total	ODA loan portion	Total	ODA loan portion	Total	ODA loan portion	Total	ODA loan portion	Total	ODA loan portion
1. Construction and equipments	14,529	14,529	5,288	5,288	19,817	19,817	17,716	13,863	7,450	6,138	25,166	20,001
2. Contingency	1,453	479	529		1,981	479						
3. Consultant services	1,748	1,748	110	110	1,858	1,858	1,882	1,833	105	93	1,987	1,926
4. Audit services	9	9			9	9	5	5			5	5
5. Management			89		89				414		414	
6. Taxes and fees			2,427		2,427				672		672	
7. Interest (during construction)	605	605			605	605	223	223			223	223
Total	18,345	17,370	8,441	5,398	26,786	22,768	19,826	15,924	8,641	6,231	28,467	22,155

Source: SAC

Notes:

- For planned costs: Exchange rate (June 2001): USD1=VND14,600=JPY122 (VND1=0.00836)

- For actual costs: JPY 1 = VND 139.9 (average 2002-2008)

At the time of ex-post evaluation, the final payment settlement has not been completed. The consultant of the project has not issued final payment certification. Thus, the actual costs in this report are the estimated costs based on the final application for payment of the contractor. The planned cost of the project was 26,786 mil. JPY, in which Japanese ODA loan contributed 85% (22,768 mil. JPY), and the counterpart fund from the Vietnamese government contributed 15%. Project cost, estimated by the time of ex-post evaluation, was 28,467 mil. JPY, 6.3% higher than planned.

As analyzed above, the planned project outputs were realized with additional outputs and both the project duration and project cost were almost as planned. Therefore the efficiency is high.

3.3 Effectiveness (Rating: 3)

3.3.1 Quantitative Effects

Effort of the project in developing an international-standard terminal, including the expansion of terminal building, installation of operation equipments and facilities, and special equipments for passengers' comfortability etc... brings positive effects. Three direct outcomes of this project include: (i) to meet the increasing transport demand through TSN international airport and (ii) to improve the convenience and efficiency for the airport users. In addition, FIRR and EIRR has been recalculated and identified as much higher than expected.

3.3.1.1 Results from Operation and Effect Indicators

All important quantitative indicators that measure the effective operation of TSN airport in general and the international terminal in particular reflect remarkable increasing tendency, especially in the years after project completion. It is also noticed that actual measurements of these indicators are always higher than what was expected at the time of conducting project feasibility study and signing loan agreement.

(1) Increased Number of Passengers at TSN Airport International Terminal

The construction of TSN Airport International Terminal has responded positively to the increasing demand of international travel of Vietnamese and foreign passengers. In 2010 alone, the volume of passengers traveling in and out Vietnam through TSN International Airport was recorded at 7,025,398, 31% higher than the projected volume of 5,362,000. For comparison, the figure is twice higher than that at Noi Bai International Airport, which is the second largest international airport in Vietnam².

The number of passengers traveling through TSN AIRPORT International Terminal increases year by year, especially in 2007, 2008 and 2010 at the average rate of 15% per year, higher than the average development rate of 14,2% per year before the project. This number is also higher than the forecast at the time of FS from 17% to 32% per year (**Figure 1**).

In 2005, FS projected figure was 3.284 million. Actual number of international passenger in that year was recorded at 4.311 million. Corresponding figures in 2008 were 4.828 million and 6.068 million; in

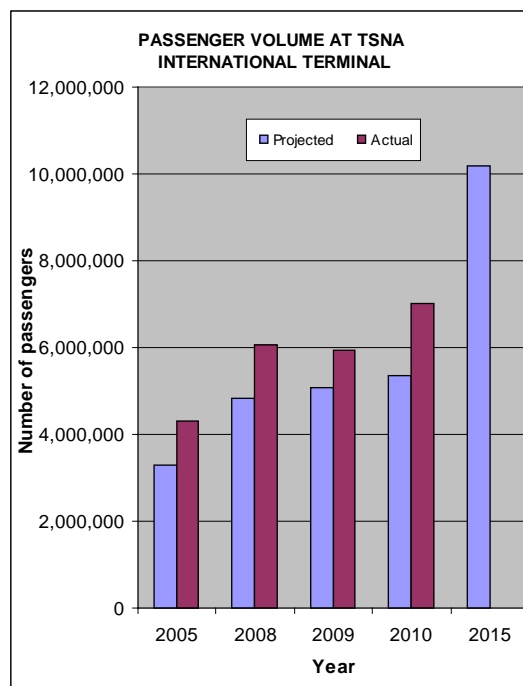
2010 were 6.806 million and 7.025 million respectively. The actual volume of luggage increases accordingly: 79,281 tons in 2001, 119,399 tons in 2005, 159,678 in 2008 and 183,421 in 2010.

(2) Increased Handling Capacity of TSN Airport International Terminal:

As the results of space expansion and installation of advanced equipments as well as strengthened management capacity of SAC's sub-companies and staff, the handling capacity of TSN Airport in general and TSN AIRPORT International Terminal in particular has been improved accordingly.

Before the project, in 2005, the average number of international passengers departing from and arriving at TSN International Airport was 838 passengers per hour and 1,911 passengers per peak hour. The corresponding figures recorded in 2009 were 1,339 and 2,492; and in 2010 were 1,719 and 2,683.

Similarly, indicators of passenger volume in peak day, peak month increases continuously one year after another and has always been higher than projected levels. For example, the number of peak-day-out passengers in 2010 was recorded at 12,085 passengers/day, almost twice larger than that in 2005 (5,938 passengers/peak day). The number of peak-day-in passengers in 2010 was also 2.3 time higher than 2005 (see **Table 7**).



Source: SAC; Projection of F/S

Figure 1: Annual Passenger volume at TSN Airport International Terminal before and after the project

² Data provided by the Department of Culture, Sport and Tourism of Ho Chi Minh city.

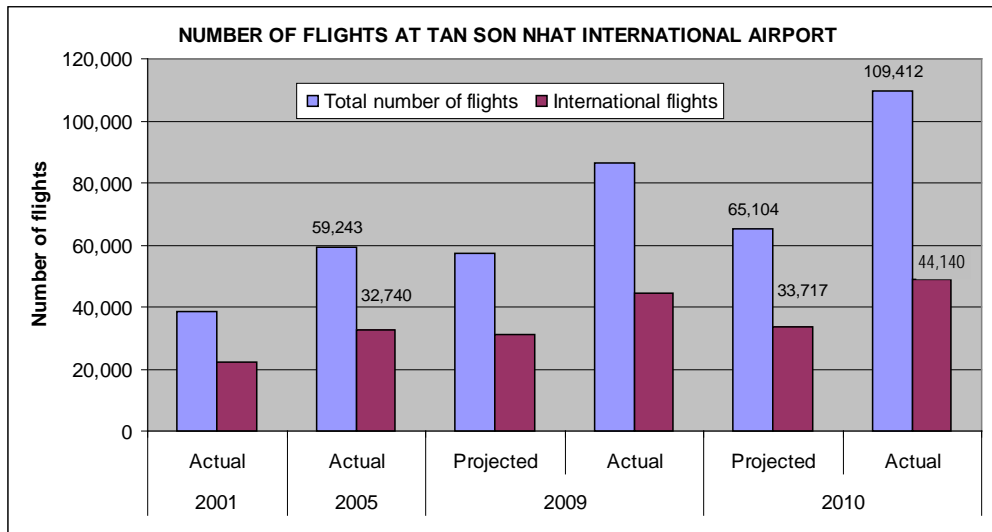
Table 7: Passenger Volume at Peak Times before and after the Project

Unit: Number of passenger

Average passenger volume	2001	2005		2009		2010	
	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual
Per hour (average)	493	674	838	927	1,339	1,204	1,719
Per peak hour		1,297	1,911	1,882	2,492	1,950	2,683
Peak day (out)	5,638	5,938	9,019	9,180	11,195	9,631	12,085
Peak day (in)	5,217	5,938	7,620	9,180	12,161	9,631	13,688
Peak month (out)	138,518	180,620	215,615	279,235	282,858	292,930	345,842
Peak month (in)	121,531	180,620	195,935	279,235	300,072	292,930	326,630

Source: SAC

Another aspect of improvement in the receiving capacity of TSN international airport is reflected by the total number of international flights annually and the number of take-off and landings at peak times. The number of international flights at TSN airport in 2001 and 2005 were 22,262 and 32,740, respectively. In 2010, the figure was recorded at 44,140, increased by 11,400 flights/year in comparison to 2005. When it comes to the combined numbers of international and domestic flights, the rate of development is even more remarkable: 59,243 flights in 2005 and 109,412 in 2010, almost double after 5 years (**Figure 2**).



Source: SAC

Figure 2: Number of Flights to and from Tan Son Nhat Airport

Peak time take-off increased from 56 flights/day in 2005 to 76 flight/day in 2010. Peak-day landing also pushed up from 53 times in 2005 to 77 times in 2010. Corresponding numbers for peak months was 1,449 in 2005 and 1,985 in 2010 (**Table 8**).

Table 8: Numbers of Takeoff and Landings in Peak Day and Peak Month at TSN Airport

Indicators	2005		2009		2010	
	Projected	Actual	Projected	Actual	Projected	Actual
Peak day take off	44	56	61	75	65	76
Peak day landing	44	53	61	73	65	77
Peak month take off	1,333	1,449	N/A	1,854	1,997 ³	1,985
Peak month landing	1,333	1,449	N/A	1,854	1,969	1,985

Source: SAC

3.3.1.2 Financial Internal Rate of Return (FIRR) and Economic Internal Rate of Return (EIRR)

(1) Financial Internal Rate of Return (FIRR)

At the time when F/S and SAPROF were conducted⁴, FIRR was estimated at 7.3% on the bases of expected incomes and expenses, including: (i) project implementation/construction costs, (ii) O&M costs, and (iii) large-scaled repairs and replacement of equipments.

At the time of ex-post evaluation, the evaluation team recalculated FIRR on the bases of actual incomes of the international passenger terminal after more than 3 years of operation. With regards to the costs and expenses, the proportion of O&M costs to income was applied at the same level used in F/S. However, other kinds of expenses were adjusted according to the financial condition of SAC in 2010. In addition, due to the fluctuation of exchange rate, an amount of budget is added annually to the total costs. This amount is comparatively big and accounted for approximately 25% of the total expenses of the international terminal.

The value of FIRR was recalculated at 24.1%, higher than the projected level by 3.3 times and convincingly reflects the financial effectiveness of the international terminal, which is far better than expected at the time of project approval.

The reasons for achieving such a high value of FIRR include: (i) the actual passenger throughput is far higher than the predicted level in F/S; (ii) More types and higher size of incomes than what listed in F/S; and (iii) A number of unit price is higher than those specified in F/S.

(2) Economic Internal Rate of Return (EIRR)

Using the same formula and variables of F/S, the value of EIRR at the time of ex-post evaluation was recalculated at 35.9%, which is 1.9 times higher than predicted (19.1%). It shows clearly the economic effectiveness of the project.

The reasons for achieving higher value of EIRR include: (i) the average spending per international tourist has been double after 10 years (USD 500/tourist in 2010 in comparison to USD 250/tourist in 2001), (ii) the actual passenger volume is far higher than the forecast level in F/S; and (iii) the proportion of incoming international tourist is higher than in F/S.

3.3.2 Qualitative Effects

(1) Ensured Maximum Aviation Security:

The newly constructed international terminal is equipped with security devices such as scanning machines, magnetic gates that allow detection of explosive and flammable substances and weapons. Access control system is also installed and operates 24/7 and detects any unauthorised entries to functional areas. These equipments, which are operated by well-trained staff, ensure the prevention of terrorist threats and maximum security for passengers and staff working at the terminal.

³ New projection by SAC made in 2009 on the basis of actual development rate of passengers at TSN Airport Int'l Passenger Terminal: the projected volume of passengers is higher than that in the F/S.

⁴ March 2001.

(2) Improved Quantity and Quality of Non-Aviation Services

Together with SAC's policy of encouraging fair competition, the expansion of the international passenger terminal provides efficient space and favourable conditions for accommodating more non-aviation services. As the results, types of non-aviation services provided and number of service providers at TSN International Airport increased remarkably.

Types of services are much more diversified. Before the project, only a basic services were provided at the international passenger terminal of TSN Airport. These include duty free, gift shops, restaurants, in- and outside the terminal, taxi, post office, VIP/CIP lounge and airport hotel. From 2007, many new services have been provided for the first time at the newly constructed terminal. Examples include luggage lockers, first aid, free drinking water, information counter, telephone booths, ATM machines, money exchange counters, internet connection in some designated areas, city tours for transit passengers, children's play ground, mini supermarket, spa/massage services, etc...

In term of quantity, number of gift shops increased from 3 to 27; information counters from 0 to 3; restaurants from 1 to 14 within the period from 2001-2010. Number of these providers at Tan Son Nhat airport (domestic and international terminals combined) rocketed also from 6 in 2001 with only state companies to 66 in 2005 and 95 in 2009. Corresponding figures for international terminal alone are 4, 26, and 57 in 2001, 2005 and 2009 respectively (**Table 9**).

Table 9: Number of Non-Aviation Service Providers at TSN Airport

Indicators	2001	2005	2007	2008	2009	1010
Total number of non-aviation service providers at TSN Airport (international and domestic terminals combined)	6	66	88	88	95	95
Number of non-aviation service providers at TSN Airport International Terminal	4	26	50	50	57	57

Source: SAC

It is acknowledged by many airport users that such changes in number of services and number of service providers in a fair competition environment have improved remarkably the quality of non-aviation services provided at the new international passenger terminal in comparison to the old one. (see more in (3) below).

(3) Improve the Convenience for the Airport Users:

The evaluation team collected opinions of different groups of airport users by a number of data collection tools such as semi-structured questionnaires, data sheets, in-depth interviews and group discussions. Almost all groups of respondents have experienced both old and new international terminals. With regard to passengers, a considerable proportion (41%) of the total 123 respondents, including Vietnamese and foreign passengers, have used the old international terminal.

Interview results show that most of the passengers are *satisfied* (48%) and *highly satisfied* (39%) with the facilities at TSN Airport International Terminal, especially the instruction system with sign boards and screens; the convenience of facilities at the departure lounge; and other equipments such as the moving-sidewalk and elevators. Few passengers have used other special facilities such as toilets with special equipments for infants and people with physical difficulties. However, they were all glad that the terminal is giving well care to its customers.

The proportion of passengers *highly satisfied* and *satisfied* with the facilities at the new terminal is remarkably high among those who have experienced both old and new TSN Airport International Terminal: 37% and 46%, respectively. For these passengers, the installation of more scanning, luggage security check equipments and more check-in, custom and passport

control counters makes good impression since their waiting time has remarkably been reduced. Although specific data on the time required going through all airport procedures before July 2007 are not available, the passengers stated that the current time amount spent on immigration procedure of 3 minutes is over their expectation.

In addition, the introduction of a number of free services that have never been provided in any other Vietnamese airports (such as free luggage lockers, free drinking water fountains...) is also highly appreciated by the passengers.

Nevertheless, although provide positive overall evaluation to the services of the airports, a number of passengers recommend that the price of goods and services at the international terminal is too high in comparison to what they can get from outside or from other international airport. The coverage of wifi is another point of disappointment. Passengers expect that they can have access to internet anywhere in the terminal.

Table 10: Groups of Respondents

#	Groups of airport users	Data collection tools	Sample size
1	Passengers	Semi-structured questionnaires & in-depth interviews	123 passengers
2	Representatives of State management agencies (Custom, Immigration Police, Department of Transportation, Department of Culture, Sport and Tourism)	Document review, Data sheet, in-depth interview	4 organisations
3	Representatives of domestic and international airlines	Data sheet, in-depth interview	1 domestic and 1 international airlines
4	Staff of non-aviation service providers at TSN Airport International Terminal	Semi-structured questionnaires	53 staff
5	Managers and staff working at TSN Airport International Terminal	Semi-structured questionnaires	
6	Leaders of members companies under SAC	In-depth interview	2 compamies
7	Leader of SAC	In-depth interview	1 (Deputy director genderal)
8	Local Government: Leaders of People's Committees at ward level	In-depth interview	2 (Ward 2 of Tan Binh District and Ward 10 of Go Vap District)
9	Local people	Group discussion	26 local people in Ward 10 of Go Vap District
		Semi-structured questionnaires	18 local people in Ward 2 of Tan Binh District

In summary, after the project the numbers of passenger and cargo volume as well as handling capacity of TSN airport international terminal have been remarkably expanded. At the same time, quality and quantity of non-aviation services have been improved and the high satisfaction of the airport passengers is shown on the convenience of its facilities and services, which includes the satisfaction on the smooth flow of passengers both in departure and arrival. Therefore, it can be concluded that this project has largely achieved its objectives of (i) meeting the increasing transport demand through TSN international airport and (ii) to improving the convenience and efficiency of the airport users.

Discussions with SAC and other concerned agencies in HCM city show that the contributing factors for achieving such good performance of effectiveness indicators include:

- The construction of the TSN airport international terminal met the urgent and remarkably increasing demands for international transportation and requirement of better connectivity for economic development at the time of appraisal, and still valid at the time of evaluation.

- As analyzed, SAC has created a good environment for fair competitiveness amongst airport service providers thus creating satisfaction of passengers as well as other airport users.
- The design of the terminal, which follows international standards and the installation of modern equipments have well ensured the passenger flow, luggage flow and passengers' convenience. In addition, the O&M staff of the airport and service providers in- and outside the airport have been well trained, supervised, and re-trained to meet the high professional standards. It is noticed that the arrangement where SAC is the project owner and at the same time the user/manager of the project result (the new international passenger terminal) has made the leaders and staff of SAC are more responsible and accountable in the construction stage as well as better prepared in the operational stage.

Therefore the project's effectiveness is high.

Box 1. Summary of Beneficiary Surveys

1. Date and place of survey: 09-17 March 2011, TSN Airport International Terminal
2. Objective of the survey: to collect passengers' satisfaction on the conditions of the terminal.
3. Survey method:
 - a) A set of draft questionnaires was designed, then tested with some TSN Airport staff and passengers. Then the questionnaires were revised thoroughly before conducting a large survey by the team.
 - b) Conducting two surveys to two major airport users, one was with passengers and the other was with staff working at the terminal.

1. Result of the survey to passengers:

	Very satisfied / Very good	Satisfied / Good	Neutral / Fair	Unsatisfied / Not good	Very unsatisfied / Very bad	Do not know / No comment
Ranks	1	2	3	4	5	
General impression of the terminal	38.6%	48.0%	9.4%	0.0%	0.0%	3.9%
Terminal's cleanliness	52.8%	40.9%	4.7%	0.8%	0.0%	0.8%
Reasonability of departure passenger flows	31.5%	45.7%	18.1%	2.4%	0.0%	2.4%
Access to information (Flight information screens, signages, information counter, Public Announcement System)	42.5%	37.8%	14.2%	3.1%	0.0%	2.4%
Availability of shops and services (e.g. clinic, spa, duty free, restaurants inside and outside, bookstores, cafe, ATM, money exchange, locker room, etc)	18.9%	39.4%	26.0%	7.9%	0.8%	7.1%
Quality of shops and services	19.7%	37.0%	25.2%	3.1%	0.8%	13.4%
Availability of toilets	39.4%	36.2%	15.0%	1.6%	0.8%	7.1%
Elevators, escalators, moving sidewalk	34.6%	41.7%	13.4%	3.1%	0.0%	7.1%
Comfortability of the boarding lounges (e.g. chairs, TV, space)	42.5%	37.8%	13.4%	2.4%	0.0%	3.9%
Facilities for disabilities and passengers who need special care (old people, women with baby, wheelchairs)	12.6%	24.4%	20.5%	0.8%	0.8%	40.9%
Availability of telephones, wifi internet	6.3%	18.1%	29.1%	11.0%	4.7%	30.7%
Reasonability of arrival passenger flows	22.8%	37.0%	13.4%	2.4%	1.6%	22.8%
Convenience of the baggage claim (e.g. display monitor, signages, trolleys, space)	23.6%	40.2%	11.8%	3.9%	1.6%	18.9%
Convenience of transport services (bus, taxi, shuttles, tours)	17.3%	29.9%	19.7%	9.4%	4.7%	18.9%

2. Result of the survey to staff working in the terminal:

	Very satisfied / Very good	Satisfied / Good	Neutral / Fair	Unsatisfied / Not good	Very unsatisfied / Very bad	Do not know / No comment
Ranks	1	2	3	4	5	
Your general impression of the terminal	30.2%	52.8%	17.0%	0.0%	0.0%	0.0%
Current working conditions - space	20.8%	67.9%	9.4%	1.9%	0.0%	0.0%
Current working conditions - equipments	24.5%	49.1%	20.8%	5.7%	0.0%	0.0%
Current working conditions - protection	15.1%	58.5%	26.4%	0.0%	0.0%	0.0%
Current working conditions - trainings	15.1%	52.8%	30.2%	0.0%	0.0%	1.9%
Current working conditions - procedures	15.1%	60.4%	20.8%	1.9%	0.0%	1.9%
Compare between the new and the old terminal	56.6%	34.0%	0.0%	0.0%	0.0%	9.4%

3.4 Impacts

Various researches and studies have shown that air transport can play a key role in economic development and in supporting long-term economic growth. It facilitates a country's integration into the global economy, providing direct benefits for users and wider economic benefits through its positive impact on productivity and economic performance⁵.

Although the contribution of TSN Airport International Terminal to the socio-economic development is yet quantified, it is reasonable to state that the construction and then operation of the new TSN Airport International Terminal generate a number of striking impacts on (i) promoting socio-economic development in HCMC and the Special Southern Economic Zone; ii) the development of aviation sector in Vietnam; iii) the environment in- and outside the airport areas; and (iv) other impacts including impact on land transport system in Ho Chi Minh city.

3.4.1 Intended Impacts

(1) Contribution to the Socio-Economic Development of HCMC and Special Southern Economic Zone

Tax contribution

Being an enterprise located in HCM city, parts of the incomes from business activities of TSN Airport International Terminal and TSN Airport as the whole contribute directly to the state budget and revenue of Ho Chi Minh City through taxation (**Table 11**) and other kind of contribution in monetary term, being part of the solutions that reduce the 2007-2009 economic crisis⁶. It is noticed that in 2007, beside a series of awards given by the Government of Vietnam and Ministry of Transportation, SAC was given the Certificate of Merit from the Ho Chi Minh People's Committee for tax obligations.

⁵ For example, an IATA analysis across a wide range of 48 countries – including both developed and developing economies – and across a ten-year period, 1996 to 2005 points out that there is a positive link between a country's level of connectivity to the global air transport network and its level of productivity and economic growth. The similar link is also presented in another study titled "The Impacts of International Air Service Liberalisation on Vietnam".

- IATA is an international trade body, created over 60 years ago by a group of airlines. Today, IATA represents some 230 airlines comprising 93% of scheduled international air traffic
- IATA. 2005. *Aviation Economic Benefits*. IATA Economic Briefing No 8
- InterVISTAS. 2009. *The Impacts of International Air Service Liberalisation on Vietnam*. London

⁶ Being an economic institution with access to foreign currencies, in 2009, SAC "sold" up to USD 100 million to the State Bank of Vietnam, solving part of the thirst for strong foreign exchange of national enterprises and making good contribution to the stabilisation of Vietnam economy in the context of global financial crisis.

Table 11: Tax Contribution of TSN International Airport to HCMC

Unit: Million VND

	2001	2005	2007	2010
Revenue of TSN Airport International Terminal	470,889	810,036	1,111,158	1,747,208
Revenue of TSN Airport as the whole	563,159	996,062	1,458,144	2,432,717
Tax contribution to HCMC	131,743	212,969	203,823	174,372

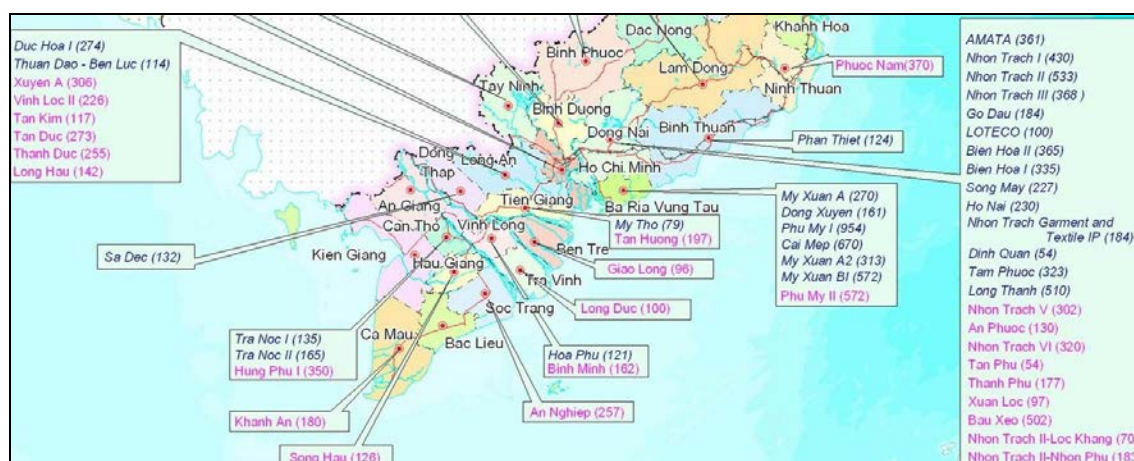
Source: SAC

Note: the differences in tax contribution due to changes in tax policies

Improved connectivity

The number of industrial parks and enterprises increased sharply in many provinces of Vietnam. In the neighbouring areas of HCMC, the number of industrial enterprises goes up to several thousands (**Map 1**).

Noticing the importance of TSN airport as the gateway to Vietnam and to the Southern Special Economic Zone where HCMC is the key member, the HCMC's People's Committee and Department of Transportation has identified the improvement of accessibility to TSN airport as one of the highest priority in the city's urban traffic network and inter-provincial transportation master plan (**Map 2**).



Source: Ministry of Natural Resources and Environment (DONRE), 2009

Map 1: Industrial Parks in the Southern Part of Vietnam



Source: Transportation Department of Ho Chi Minh city (2008)

Map 2: Airports in the Master Plan for Traffic and Transportation Network of HCMC

It can be said that the construction of TSN Airport International Passenger Terminal is the starting points of many other transportation projects, which aim at improving the city's traffic network on the one hand and connecting the city with other neighboring industrial zones in Binh Duong, Tay Ninh, Ba Ria-Vung Tau, Da Lat... on the other hand. Important transportation projects, which were planned during the construction and after the completion of the new terminal, are all taking into consideration the connectivity with and accessibility to TSN airport. Examples include: Highway HCMC – Trung Luong – Can Tho; the urban transportation belts No 1, 2; the improvement of the city's key traffic axes such as East-West Corridor, Truong Chinh street, Thu Thiem tunnel, Nguyen Van Troi street – Nam Ky Khoi Nghia street... Tan Son Nhat airport is also an important stop in any plan of developing HCMC public transportation system: bus routes, subway and monorail train.

Promoting economic development

The improvement of connectivity and mobility provided by the new international terminal – the gateway to Vietnam and HCM city - generate favourable environment for businesses. Many government agencies and local governments in HCM city (such as the Department of Planning and Investment, Department of Culture, Sport and Tourism, People's Committee of Ward 2 Tan Binh District and People's Committee of Ward 10 Go Vap District) acknowledge the positive impacts of the new terminal on the development of FDI enterprises and of the city's tourism sector.

Table 12: Economic Development in Ho Chi Minh City 2001-2010

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Number of FDI enterprises	664	824	843	970	1,222	1,324	1,508	1,590	2,026	
GDP of HCMC (VND thousand billion)	84	96.4	113.3	137	165.3	190.5	229.2	287.5	337	414

Source: Statistic Office of Ho Chi Minh City

Table 13: Economic Growth Rate of HCM City and Special Southern Economic Zone

	National	HCM City	Special Southern Economic Zone
GDP growth rate 2001-2005	>7%	>11%	12%
Growth of industrial sector 2001-2005	10%	13%	15%
GDP growth rate 2006-2010	8%	13%	N/A
Growth of industrial sector 2006-2010	11%	12.7%	14%

Source: Department of Planning and Investment of HCMC

According to the data provided by the Statistics Office and the Report on Implementing 5-year Socio-Economic Development Plan 2006-2010 of the People's Committee of HCMC, the number of FDI enterprises and total FDI investment to HCMC keep increasing across 2001 to 2010, despite negative impacts of 2007-2008 crisis. Average economic growth rate of HCM city from 2006-2010 remained high and was always higher than the national average level. The "size" of HCMC's economy in 2010 is 1.7 times larger than in 2005; GDP per capita in 2010 was estimated at USD 2,800 USD or 1.68 times higher than in 2005 (see more details in **Table 12** and **Table 13**).

Table 14: Development Indicators of Tourism Sector of HCMC

	2006	2007	2008	2009	2010
Total number of tourists to HCMC	2,350,000	2,700,000	2,800,000	2,600,000	3,100,000
Total number traveling by air	1,858,000	2,100,000	2,130,000	1,800,000	2,500,000
Vietnamese traveling abroad through HCMC	600,000	600,000	650,000	780,000	800,000
Total revenue from tourism (VND billion)	16,200	24,000	31,000	35,000	41,000
Travel agents	452	541	570	634	666
Companies that provide overnight stays	772	965	N/A	N/A	N/A
Hotels	872	1,054	1,165	1,350	1,461
Certified rooms	22,000	25,769	27,665	31,591	34,091

Source: Department of Culture, Sport and Tourism of HCMC (Annual Reports from 2006-2010)

According to the evaluation of the Department of Culture, Sport and Tourism, up to 69.2% international tourists going to and 80.6% leaving HCMC at TSN Airport International Passenger Terminal. The rest travel through sea ports and on-land ports. Such figures show clearly the importance of the new terminal to the development of the city's tourism sector.

Data provided by the Department of Culture, Sport and Tourism indicate that total revenue from the tourism sector of HCMC increased from VND 16,200 billion in 2006 (the year before project completion) to VND 24,000 billion in 2007 (the year when the project was completed) and VND 31,000 billion in 2008 (just 1 year after the project completion). Tourism infrastructure has also been developed remarkably with 22,000 certified rooms in 2006 to 34,091 in 2010 (**Table 14**).

(2) Contribution to the Development of Aviation Sector in Vietnam

The increased receiving capacity of TSN Airport International Passenger Terminal and the policy of fair competition, which resulted in reasonable price and improved quality of services, have become key factors that attract more airlines to Tan Son Nhat airport. According to SAC's monitoring data, the number of airlines that have flights to and from Tan Son Nhat airport as well as use technical service here has increased from 40 in 2007 to 46 in 2010, of which international airlines from 37 to 42 respectively. Today, many world-wide famous airlines (such as: Air France-KLM; Lufthansa; United Airlines, Qatar Airways, Cathay Pacific; ANA, Air

China, JAL, Korean Air, Asiana, Air China, China Airlines...) are in the list of SAC's customers.

The Southern Airports Corporation (SAC) is currently managing 8 Airports of Southern Vietnam, including Tan Son Nhat International Airport and 7 local airports in Buon Ma Thuot, Lien Khuong, Phu Quoc, Rach Gia, Ca Mau, Con Dao and Can Tho. Experience of SAC in managing the construction and operating the new TSN Airport International Passenger Terminal is well applied in other airports, especially the international gateways of Can Tho International Airport, and Phu Quoc International Airport. Recently, SAC was assigned by the GoV to make assesment and preparation for the construction Long Thanh International Airport, which will be the targets and most modern international airport in Vietnam.

This new and modern international airport terminal with its systematically installed equipments has been the base for Vietnamese airlines such as Vietnam Airlines, Pacific Airlines, and other aviations to compete with international airlines. The effective construction and operation of the terminal have created a cornerstone for the preparation of the Long Thanh international airport that is expected to accommodate 80-100 million passengers per year.

3.4.2 Other Impacts

(1) Impacts on Environment

SAC - the corporation in charge of project management and then responsible for management, O&M, providing services and running businesses at the international passenger terminal after the project completion – conducts environmental surveillance and submits regular periodic environmental quality control reports to the Department of Natural Resources and Environment (DoNRE) of HCMC. Complying with SAC's environment protection plan and regulations of DoNRE, **quarterly reports** has been made during the construction and after the project completion, when the terminal is put in operation and cover not only the areas inside the airport but also those around it. Key monitored environment indicators are presented in **Table 15**.

The results of environment monitoring on the air quality inside and around the airport, noise level, water quality in and around the airport's waste water treatment facility in December 2010 show that:

- Most of the indicators of air quality in and around the airport are within the permitted levels regulated by the Ministry of Natural Resources and Environment (MONRE) and listed in the set of Vietnam National Standards (QCVN 05:2009/BTNMT and QCVN 06:2009/BTNMT). Exceptions are found at a number of locations including KK1 (position near the control tower), KK9 (Truong Son street), KK10 (airport entrance – No 2, Song Day street) where the concentration of dust is higher than permitted level. The concentration of VOC (Volatile Organic Compound) is also higher than the national standards at positions KK1, KK2 (air craft parking area), KK5 (bordering area between the old and new terminal), KK9 and KK10.
- Noise and vibration generated by the waste water treatment facility and other activities at TSN Airport International Passenger Terminal are kept within the permitted level (Vietnam standards for noise TCVN 5949- 1998 and for vibration TCVN 6962 – 2001) and do not noticeably affect the surrounding areas.
- Quality of water used in the airport area meets the requirements of national standards (QCVN 02:2009/BYT) regulated by the Ministry of Health.
- Almost all indicators for quality of water discharged from the waste water treatment facility meet the requirements of national standards QCVN 14:2008/BTNMT regulated by MONRE.

Table 15: Environmental Indicators Monitored

Stages		Vietnam standards	Monitored parameters	Permitted level	Monitored			
						2004	2005	2006
Construction stage	Air quality	QCVN 05:2009/BTNMT and QCVN 06:2009/BTNMT	SO ₂ (µg/m ³)	50				
			NO ₂ (µg/m ³)	40				
			TSP (µg/m ³)	140		0.40	0.37	0.40
			Particles < 10µm (µg/m ³)	50		0.25	0.24	0.26
			CO (mg/m ³)	N/A				
	Noise and vibration	TCVN 5949 - 1998 và TCVN 6962 -2001	Location 1 (dB)	75		74.6	61.4	63.1
			Location 2 (dB)	75		77.9	77.0	75.5
			Location 3 (dB)	75		75.2	61.0	61.5
	Quality of underground water	QCVN 02:2009/BYT	pH	5 - 9				
			DO (mg/l)	2				
			COD (mg/l)	50				
			Oil (mg/l)	20		0.39	0.21	0.36
			SS	100		16.3	29.8	47.1
Stages	Monitored indicators	Vietnam standards	Monitored parameters	Permitted level	Monitored			
					2007	2008	2009	2010
Operation stage	Air quality and air-born pollution	QCVN 05:2009/BTNMT and QCVN 06:2009/BTNMT	SO ₂ (µg/m ³)	50				
			NO ₂ (µg/m ³)	40				
			TSP (µg/m ³)	140		0.40	0.37	0.40
			Particles < 10µm (µg/m ³)	50		0.25	0.24	0.26
	Noise pollution as results of vehicles operation and aircrafts taking off and landing	TCVN 5949 - 1998 và TCVN 6962 -2001	Location 1 (dB)	75	74.8	69.9	68.6	74.6
			Location 2 (dB)	75	70.2	62.6	62.7	61.8
			Location 3 (dB)	75	78.3	78.8	70.3	78.3
	Quality of underground water	QCVN 02:2009/BYT	pH	5 - 9	7.4	6.7	8.13	7.17
			DO (mg/l)	2	0.9	1.0	1.2	0.9
			COD (mg/l)	50			20	31
			Oil (mg/l)	20	3.07	1.38	1.3	3.30
			SS	100	25.6	21.2	17	18

Source: Environment monitoring reports of SAC

Regarding the quality of air, water and noise level outside the airport areas, results of interviews and group discussions with leaders of local governments, local people in Ward 2 of Tan Binh district (the place where TSN airport is located) and Ward 10 of Go Vap district (the area directly under the airport approach path) (see **Table 10** for sample size) show that high concentration of dust *due to high level of traffic* around the airport is one of very few concerns of the local governments and local people about environment quality. According to the perception of local people, the level of water and noise pollution (in both during the construction and after the project completion) are acceptable.

Noticeably, all respondents of the interviews conducted in Ward 2 of Tan Binh district and Ward 10 of Go Vap district expressed their appreciation to the way of construction management, where pollution level was minimised, saying that they wish all other constructions in HCMC were managed in similar way.

Naturally, people living under the airport approaching path are the most affected by noise

and vibration caused by aircraft taking off and landing. However, discussion with a group of more than 25 people in Ward 10 of Go Vap district show that such noise and vibration only affect the elderly and children late in the evening when they are in bed. During the day time, noise caused by the aircrafts does not draw people's attention more than the noise from other sources such as cars, motorbikes and loud speakers.

Box 2. Summary of Focus Group Discussion

1. Time and Place: 14 March, 2011 at Ward 10, Go Vap District, HCMC
2. Participants: Total 25 local people
3. Discussion question: "How did the project change your life?"

Top major issues of the project to local people's daily life include:

- Noise from landing/taking off airplanes, especially during night time
- Vibration affecting houses and buildings
- Cannot build high house (and do not know how high is limited)
- Feeling of uncertain safety
- Convenience in accessing to the airport

(2) Unexpected impact: taxi parking in not-permitted areas

The fact that a large number of international visitors travel to and from TSN international airport every day has attracted a large number of taxis in the areas around the airport. Despite regulations on picking up passengers and specified parking stations for taxis both in- and outside the airport area, many taxi drivers, for their own convenience, intentionally park their vehicles in not-permitted areas outside the airport. This is one of the factors contributing to higher traffic pressure and high concentration of dust around TSN airport. It was pointed out in the in-depth interview with the leader of Ward 2 of Tan Binh district that the situation has somehow reduced the level of satisfaction of local people to the airport.

3.5 Sustainability (Rating: 3)

3.5.1 Structure of the O&M System

Southern Airports Corporation (SAC) is a state owned Corporation under the Ministry of Transport, is currently managing 8 airports of Southern Vietnam, including Tan Son Nhat International Airport and 7 local ones including Buon Ma Thuot, Lien Khuong, Phu Quoc, Rach Gia, Ca Mau, Con Dao and Can Tho Airports. In 2008, SAC was established based on reorganization of the Southern Airports Authority (SAA). At present, SAC employs approximately 4,000 people and consists of 07 subsidiary companies operating in wide range of fields.

After project completion, SAC has been responsible for the operation and maintenance of the project items. **Figure 3** below shows the current organization of SAC. This structure is appropriate to the functions and mandates of the Corporation and ensures smooth O&M of each of the sub-ordinate units.

In addition to the structure of SAC, the model where the project owner later become O&M agency of the project and being direct beneficiary helps the O&M of the project smooth and effective. In this project, the project owner (SAC) is also the direct beneficiary – who later operates the international passenger terminal when the project is completed. This model of practice generates a number of advantages of those two important ones include:

- SAC staff were trained during the project implementation and are capable to take over the operation and maintenance of the terminal right after the project completion.

- SAC staff were well aware of the fact that they were constructing a facility for their own company. Therefore, the staff's responsibility and accountability were strongly strengthened. This partly explains the comparative advantage project implementation period and costs.

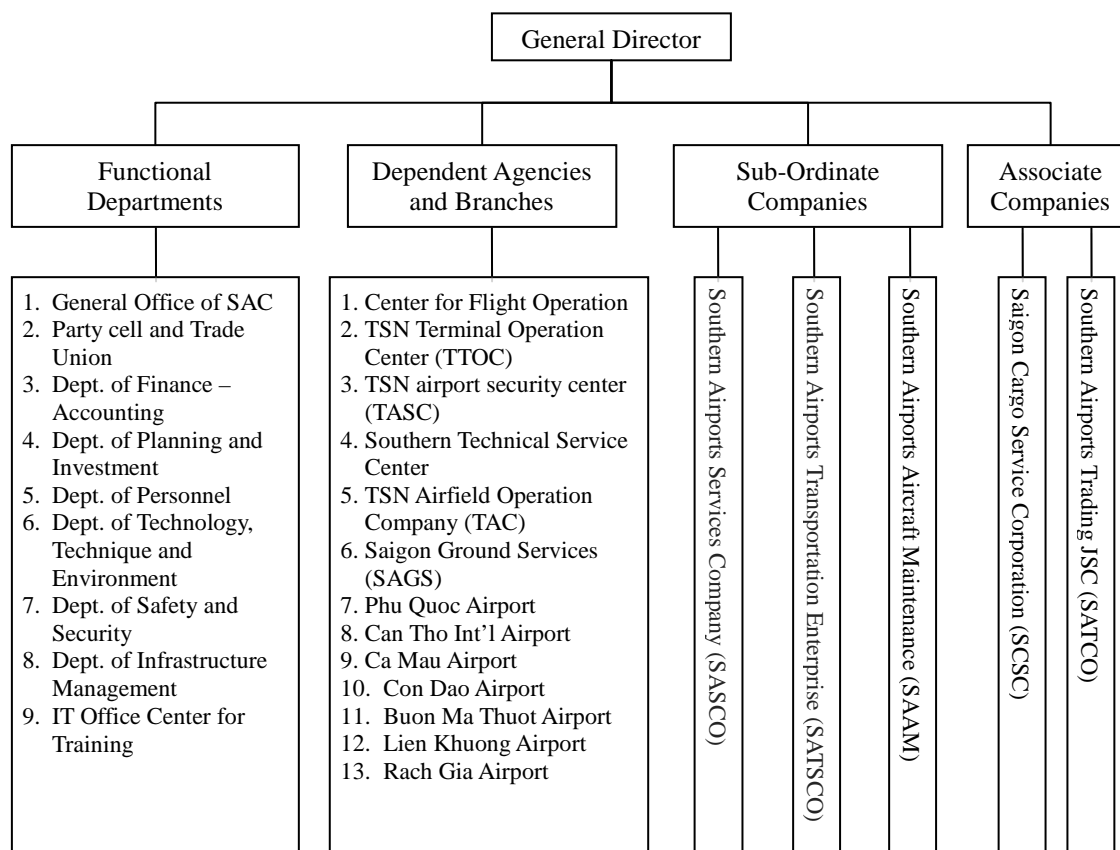


Figure 3: SAC's Organization Chart

3.5.2 Technical Aspects of O&M

(1) Technical Capacity of SAC Staff

SAC has arranged technical staff to monitor and supervise the implementation of the project. These staff, who had been trained from real work thus understanding the technical aspects of the systems, understanding the O&M procedures of the systems, have well received and managed the handed-over international terminal from the first day of operation. Moreover, those staff have been sent to specific and general trainings, organized both in-country and abroad, to obtain skills and knowledge to fulfill their duties.

Table 16: SAC's Total Staff and Number of Staff being Trained

Number of staff	2006	2007	2008	2009	2010
SAC's total staff (persons)	2,064	2,297	2,528	2,868	3,267
Number of staff being trained (persons)	1,374	5,809	6,289	501*	3,789

Source: Division of Organization and Personnels of SAC.

* Exact data of number of staff being trained internally within the organization is not available

With those regularly trained staff, SAC's units have well carried out the O&M tasks of all technical systems, together with responsibilities in O&M of the main and important systems that operate 24/7 in the terminal.

Besides domestic and international trainings, SAC staff have also been participated in a number of internal training courses organized and delivered by the Flight Control Center and Saigon Ground Services (SAGS). The contents of those trainings support the O&M of the airport and the terminal, such as: Common use terminal equipment (CUTE), automatic monitoring system for flight controllers, technology transfer and trainings for O&M and utilization of the fire distinguish system, radioactive safety for O&M staff of the scanning systems, weight balance of airplane etc.

(2) Capacity for Providing Competitive Aviation Technical Services

SAC pays great attention on creating a healthy environment for fair competition in providing both aviation and non-aviation services at Tan Son Nhat airport. The capacity of management and providing aviation services of other SAC's member companies has also been strongly improved. Sai Gon Aviation Ground Service (SAGS) is one of the typical examples. Being established by SAC in 2005, less than 2 years before the project completion, SAGS has been developing fast with its revenue increasing continuously at the average annual rate of 17% - 18%/year. At the time of evaluation, SAGS occupies up to 50% of the market share of ground services at Tan Son Nhat Airport. In June 2010, SAGS started to provide aircraft technical service, which requires highly qualified personnel, equipments and management capacity. The company is now technical service provider to 13 airlines. Engineers and technical staff of SAGS hold international professional certificates and are qualified to certify technical files for aircrafts (maximum to Boeing 777) of international airlines.

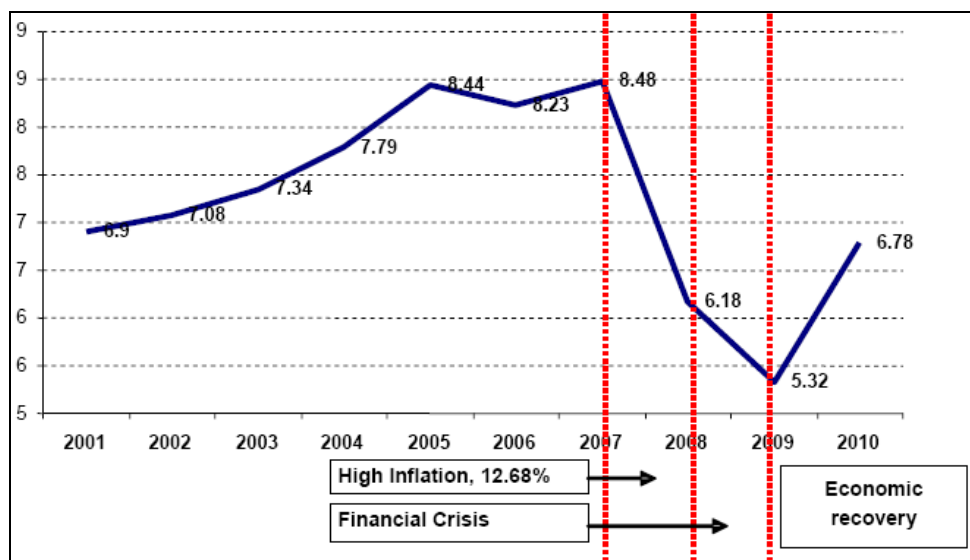
SAGS is the first typical example of SAC's effort in eliminating monopoly system in providing aviation ground services. Before 2005, the Vietnam Airlines funded TIAGS was the only aviation ground service provider at Tan Son Nhat airport and all other airlines, including domestic and international, would have to use its service. Since SAGS was established, the competition between the two service providers by setting reasonable price and improving quality of services has become one of the factors that attract more airlines to Tan Son Nhat airport. Similar situation is also observed in non-aviation services.

3.5.3 Financial Aspects of O&M

(1) Revenue of TSN Airport International Passenger Terminal

TSN Airport International Terminal started operating in a context where Vietnam economy was in its recession due to negative impacts of the global financial and economic crisis 2007-2009. The average annual growth rate of Vietnam's economy dropped from 8.48% in 2007 to 6.18% in 2008 and further to 5.32% in 2009 (**Figure 4**).

In such a context, revenue of TSN airport in general and of TSN Airport International Terminal in particular kept increasing. Total revenue of the new international terminal reached the level of over VND 1,111 billion right in the first year of operation. The revenue in 2010 was recorded at VND 2,747 billion (**Table 17**).



Source: GSO (2010)

Figure 4: Economic Development of Vietnam from 2001-2010

Table 17: Operation Revenue of TSN Airport International Terminal

Unit: Mil. VND

	2001 Actual	2005 Actual	2007 Actual	2010 Actual	2015 Predicted	2020 Predicted
Passenger service charge (PSC)	227,567	376,746	580,298	1,006,816	1,809,818	1,827,916
Revenue from Aviation Service charges	179,342	302,865	348,704	466,474	625,502	631,757
Space and office lease Revenue	34,120	70,032	100,430	177,620	192,873	194,801
Revenue from concession	10,275	20,821	25,285	26,937	30,398	30,702
Revenue from aerobridge charge	15,424	33,983	40,533	46,002	57,827	58,406
Other	4,161	5,589	15,908	23,359	24,689	24,936
Total	470,889	810,036	1,111,158	1,747,208	2,741,107	2,768,518

Source: SAC

(2) Budget allocated for O&M

According to SAC, the costs for O&M have been well ensured by the revenues from different services of the new terminal.

Beside the operation, maintenance and training for the staff, SAC has outsourced some of the high-tech, special and important systems to experienced contractors, such as the systems of FIS, MIS, fire distinguish, gate control, waste water treatment, elevators, escalators, parking control, etc. The outsourcing on the one hand reduces significantly the maintenance costs, on the other hand ensures the quality of the operation of those systems. The O&M costs have been taken from the regular/recurrent costs of the Corporation, thus being ensured annually.

Table 18: O&M Costs of the TSN International Airport Terminal

Unit: Mil. VND

	2001 (act.)	2005 (act.)	2007 (act.)	2010 (act.)	2015 (est.)	2020 (est.)
Whole TSN airport	57,030	48,511	27,716	64,457	82,265	104,494
International terminal				20,933	26,000	30,000

Source: SAC

3.5.4 Current situations of O&M

Current situations of O&M can be divided into two parts: Operation, and Maintenance. For Operation, there are three Centers that are operation the airport:

- Southern Technical Service Center: its 41 staff are splitted into three shifts (12 persons/shift) to operate 24/7 the following systems: Baggage handling system (BHS), Building management system (BMS), air ventilation and conditioner systems, and equipments in the power generation station including the generators.
- TSN Terminal Operation Company (TTOC) operates the telephone center (7 staff), car toll system (18 staff), wastewater treatment system (4 staff), and other systems such as escalators, elevators, autodoor, sliding gate, shutter door, reservoir and pumping systems.
- TSN Security Center operates 24/7 the access control system (ACS) with 4 staff on each shift.
- Besides there are other monitoring systems that are run by responsible agencies such as airport flight information system (FIDS), management information system (MIS), closed-circuit television (CCTV) etc.

For Maintenance, there are Centers under SAC and contracted companies outside the SAC that are maintaining the equipments of the terminal in particular, and of the whole airport in general:

- Southern Airport Technical Services Company (SATC) has three teams including Electro-Refrigeration team (81 staff), Electronic team (22 staff), IT team (24 staff) that are maintaining and repairing most of the technical equipments in both domestic and international terminals.
- Besides, TTOC has contracted outside companies for maintaining some of the equipments and systems of the terminal, such as Cao Thien Tao Company that is responsible for maintaining the wastewater treatment system, Melco Company takes care of the elevator and escalator systems, Schnindler maintains the moving sidewalk system (MSW)], Tien Phong Company maintains the auto door systems, etc.

All of the equipments and systems are well operated and maintained.

Besides, SAC has sufficient O&M manuals for all various operations in the airport. All of them are stored in both soft and hard copies. Each unit has sufficient technical detailed guidelines for its own area of responsibility. The manuals are well printed, easy to reach, and carefully and regularly used.

Being well aware of the importance of TSN airport as a key gateway to and from Vietnam, and as one of the symbol of the city, SAC and the local authorities have strongly enforce the policy of keeping beautiful landscape outside and along the streets leading to the airport.

As mentioned above, there is no problem with the O&M system. Therefore the sustainability of the project is high.

4. Conclusion, lessons learnt and recommendations

4.1 Conclusion

In light of such findings, this project is evaluated to be **highly satisfactory** (Overall Rating: A).

4.2 Recommendations

Recommendations to SAC:

The situation where a big number of taxis always parking in not-permitted areas outside the airport has somehow reduced the level of satisfaction of local people to the airport. This, in practice, turns out to be not a simple problem to be solved. It is recommended to SAC to effectively cooperate with the People's Committee of Ward 2 of Tan Binh district, and concerned authorities of HCMC such as Department of Transportation, Traffic Police Force and many other concerned agencies to regulate and monitor the operation of taxi companies in and outside the airport area.

4.3 Lessons Learnt

Working safety should be strictly monitored and enforced: Safety regulations were strictly monitored during the project implementation. As the results, there was no major accident during 16 million working hours of the project implementation.

Model of project owner being project O&M agency and direct beneficiary: This project should be a good example of how effective and efficient the O&M of the project have been achieved. On the one hand, capacity of SAC staff are built to take over the O&M of the terminal after the project completion. On the other hand, the staff are fully aware that the works that they contributed to will be their own properties that later generate their benefits, thus increasing accountability.

Creating fair competition environment would ensure the quality of services: By establishing SAGS, SAC has initially and successfully attempted to eliminate monopoly in aviation service provision in the TSN international airport. The competition between SAGS and TIAGS sets more practical costs for and better quality of the services thus attracting more customers – airlines, to the airport. Similar situation is also observed in non-aviation services.

Comparison of the Original and Actual Scope of the Project

Item	Original	Actual
1. Project Outputs		
1.1. Terminal facilities		
▪ Number of floors	3 floors	3,5 floors
▪ Total floor area	~ 75,000 m ²	93.000 m ²
▪ Area of Site clearance	150,000 m ²	129,000 m ²
1.2. Special equipments		
▪ Baggage handling system	2 sets	Same as planned
▪ Passenger boarding bridge	6 sets	8 sets
▪ Flight information display system	1 system	Same as planned
▪ Escalator	9 sets	18 sets
▪ Elevator	14 sets	20 sets
▪ Security system		
▪ X-ray equipment	16 sets	Same as planned
▪ Arch-shape metal detector	10 sets	Same as planned
▪ Common use terminal equipment (CUTE)	1 system	Same as planned
1.3. Civil work		
▪ Road	~ 41,000 m ²	- Area of Road: 55.000 m ² - Car park Area: 23.000 m ² - Area of GSE lanes and parking: 13.000 m ² - Viaduct: 10.540 m ²
▪ Car park	~ 34,000 m ²	
▪ Ground Service Equipments (GSE) lanes & parking	~ 32,000 m ²	
1.4. Aircraft fuel system		
▪ Pipes system	3,500m ØK 14"	Same as planned
▪ Other system	06 tunnels with 27 valves controlled by motor	Same as planned
1.5. Airport utilities		
▪ Electricity supply	1 system	Same as planned
▪ Internal lighting	1 system	Same as planned
▪ External light	1 system	Same as planned
▪ Telephone	1 system	Same as planned
▪ Water supply <ul style="list-style-type: none"> ○ <i>water tanks</i> ○ <i>pumps</i> ○ <i>pressurized tank</i> 		- 2 sets - 4 sets - 2 tanks
▪ Clean water treatment system		1 system
▪ Waste water treatment system		1 system
▪ LPG system		1 system
▪ Solid waste treatment	N/A	N/A
▪ Other utilities (see attached file)		
1.6. Consultancy		
▪ Detailed design	Foreign: 116 MM Việt Nam (133+200)MM	Foreign: 128 MM VN: 117 MM
▪ Tendering	Foreign: 33 MM VN: (31+70) MM	Foreign: 21 MM VN: (7+32)MM
▪ Construction supervision	Foreign: 285 MM VN: (344+197) MM	Foreign: 378 MM VN: (398+437) MM
▪ Maintenance Supervision) (including environmental management and supervision during the warranty period)		Foreign: 33 MM VN: (25+49) MM

Item	Original	Actual
2.Project Period	End of 2001 – December 2006 (61 months)	March 2002 – July 2007 (64 months)
3.Project Cost		
Amount paid in Foreign currency	18,345 million yen	19,826 million yen
Amount paid in Local currency	8,441 million yen	8,641 million yen
Total	26,786 million yen	28,467 million yen
Japanese ODA loan portion	22,768 million yen	22,155 million yen
Exchange rate	USD 1 = VND 14,600 = JPY 122 (As of June 2001)	JPY 1 = VND 139.9 (Average between 2002 and 2008)