



Technical Assistance Report

Project Number: 39564
December 2006

Lao People's Democratic Republic: Preparing the Greater Mekong Subregion Louangphrabang Airport Improvement Project

Asian Development Bank

CURRENCY EQUIVALENTS

(as of 12 October 2006)

Currency Unit	–	kip (KN)
KN1.00	=	\$0000998253
\$1.00	=	KN10,018

ABBREVIATIONS

ADB	–	Asian Development Bank
DCA	–	Department of Civil Aviation
EMDP	–	ethnic minority development plan
GMS	–	Greater Mekong Subregion
ICAO	–	International Civil Aviation Organization
LAA	–	Lao Airports Authority
LPA	–	Louangphrabang Airport
MCTPC	–	Ministry of Communication, Transport, Post and Construction
Lao PDR	–	Lao People's Democratic Republic
TA	–	technical assistance

TECHNICAL ASSISTANCE CLASSIFICATION

Targeting Classification	–	General intervention
Sector	–	Transport
Subsector	–	Civil aviation
Themes	–	Sustainable economic growth, regional cooperation

NOTE

In this report, "\$" refers to US dollars.

Vice President	C. L. Greenwood, Jr., Operations Group 2
Director General	R. M. Nag, Southeast Asia Department (SERD)
Director	J. R. Cooney, Infrastructure Division, SERD
Team leader	J. M. Miller, Principal Transport Specialist, SERD



I. INTRODUCTION

1. During the 2006 Country Programming Mission, the Government of the Lao People's Democratic Republic (Lao PDR) requested the Asian Development Bank (ADB) to provide project preparatory technical assistance (TA) to prepare the Greater Mekong Subregion (GMS) Louangphrabang Airport Improvement Project. In August 2006, an ADB mission¹ visited Louangphrabang Airport in Lao PDR. The TA is included in ADB's regional cooperation strategy and program update (2006–2008).²

II. ISSUES

2. The Lao PDR is located between Cambodia, People's Republic of China, Myanmar, Thailand, and Viet Nam. Two thirds of its land area is covered by forest and woodland, and its population is estimated at 5.6 million. Improved transport facilities are crucial for the landlocked and mountainous country. In the absence of a railway system and access to the sea, Lao PDR depends heavily on road transport followed by civil aviation. Development of civil aviation transport infrastructure is crucial to promoting national, regional, and international tourism.

3. The Department of Civil Aviation (DCA) within the Ministry of Communication, Transport, Post and Construction (MCTPC) is responsible for policy and planning in civil aviation and for regulatory oversight of technical and safety matters pertaining to Lao Airlines and the Lao Airports Authority (LAA). DCA has eight divisions plus LAA. Under a decree of the Prime Minister, DCA governs the civil aviation sector. The Civil Aviation Master Plan for 1991–2000 was prepared by the United Nations Development Programme and the International Civil Aviation Organization (ICAO). It was later reviewed and twice updated under ADB funding.

4. LAA has eight sections and is responsible for the operation and maintenance of Vientiane's Wattay International Airport, two regional airports (at Louangphrabang and Pakse), and two provincial airports (at Luang Namtha and Savannakhet). All other small airports are the responsibility of the provincial governments with DCA providing technical consultation. The national airline, Lao Airlines, a state-owned company, provides international services and is the sole operator on all domestic routes. Other international services to the Lao PDR are operated primarily by Bangkok Airways, Thai Airways, and Vietnam Airlines.

5. The tourism sector constitutes one of the 11 flagship programs in the 10-year strategic framework of the Greater Mekong Subregion Economic Cooperation Program. This recognizes the important contribution that tourism could make to socioeconomic development (especially poverty reduction) and conservation of natural and cultural heritage resources. Current forecasts suggest that growing connectivity, development, and awareness of the subregion as a global destination could increase total international tourism arrivals to the subregion from 14.6 million in 2004 to between 46 million and 52 million by 2015. The objectives of the GMS program for the tourism sector are to develop and promote the Mekong region as a single destination by offering a diversity of good quality and high-yielding subregional products that help to distribute the benefits of tourism more widely; add to the tourism development efforts of each GMS country; and contribute to poverty reduction, gender equality, empowerment of women, and sustainable development while minimizing adverse impacts.

¹ The visit was part of the Interim Review Mission for TA 4742-LAO (ADB. 2005. *Technical Assistance to the Lao People's Democratic Republic for the Northern Greater Mekong Subregion Transport Network Improvement Project*. Manila).

² ADB. 2005. *Regional Cooperation Strategy and Program Update (2006–2008): Greater Mekong Subregion*. Manila.

6. Tourism is an important and growing component of the Lao PDR economy. Tourist arrivals have increased at an average annual rate of 45% since 1990 to more than 1 million in 2005. Revenues from tourism amount to an estimated \$100 million (4% of 2005 GDP) per year. More than two thirds of tourists come from other GMS countries. About 55% of the tourists are from Thailand; 15% from Viet Nam; about 4% each from the United States and People's Republic of China; and 3% from France. There is substantial potential for continued increases in tourism. Tourism arrivals in the Lao PDR are only 28% of Cambodia's, 2% of Thailand's, and 11% of Viet Nam's.

7. Louangphrabang city is the historical former royal capital of Laos and was designated a World Heritage Site in 1995 by the United Nations Educational, Scientific and Cultural Organization. Located on the east bank of the Mekong River and at the mouth of the Nam Khan River, the site contains the former royal palace and more than 50 temples. It is rapidly developing into a popular tourist destination. The city can be reached by land, by river, or by air through Louangphrabang Airport (LPA).

8. LPA was constructed in 1972 and is within 2 kilometers of the historic city center. It is the second busiest airport in Lao PDR, after Vientiane's Wattay International Airport. It currently serves as a regional airport with scheduled international flights to Bangkok, Chiangmai, and Siem Reap. It also is a major domestic hub for the northern cities in Lao PDR, with scheduled connections to Houeixai, Phongsaly, Vientiane, and Xieng Khouang. Passenger traffic at the airport has been increasing steadily in recent years. In 2004, the airport's reported passenger traffic was 143,111, of which approximately 38% were international passengers. At present, flight paths for most aircraft landings and takeoffs at LPA pass over the World Heritage Site, which is located to the southwest of LPA. However, realignment of the runway could minimize any potential negative impacts from aircraft noise and emissions. Realignment of the runway would also enable shifting of the most frequently used flight paths so that they no longer pass directly over the heritage site.

9. LAA is responsible for (i) providing the aeronautical and air traffic service to LPA, (ii) providing maintenance services to the airport to ensure the facilities are in a safe and good operating condition, (iii) providing personnel to manage day-to-day airport operations, and (iv) collecting service charges from airport users and tenants on behalf of the Government. The Louangphrabang provincial government is fully responsible for managing and developing the LPA infrastructure and facilities, as well as for providing LPA with adequate capacity to cope with the growing traffic demand and, thereby, to support the socioeconomic development of the province. A private sector company is responsible for management and operation of the existing passenger terminal compound at LPA under a concessionaire lease contract with Louangphrabang's provincial government. That contract will expire in December 2018.

10. A preliminary assessment for upgrading LPA was conducted under ADB TA 3968-LAO: Northern Airports Improvement Project.³ The assessment found that although the existing runway is able to accommodate the increasing air traffic demand, the terminal capacity and aircraft parking apron are acutely short of capacity to support passenger operations during peak operating hours. However, the assessment also found that the airport's more critical constraints are not related to traffic capacity but relate to operational safety compliance due to constraints of the original design.

³ ADB. 2002. *Technical Assistance to the Lao People's Democratic Republic for Preparing the Northern Airports Improvement Project*. Manila.

11. With LPA's new 2,200 x 45 meter runway and installation of navigational aids for instrument landing systems, the Government is very interested in further upgrading the runway to an ICAO Code 4C Category I precision-instrument runway and also to make other airport infrastructure modifications to support the operation of B737 and A320 aircraft in the near future. These aircraft types are used by regional airlines to service the other major tourism destinations in the GMS. The airport does not meet the requirements of an ICAO Code 4 precision-instrument runway primarily because obstacle clearance requirements for precision-instrument runways are not met. The existing aircraft parking apron, air traffic control tower, terminal building, and some ancillary airport buildings are either located within the runway strip or encroach into the transitional surfaces of the precision-instrument runway.

12. The existing fire station facility is also not able to support the operation of B737 and A320 aircraft. The terminal building and control tower are modern but are too small to handle the future passenger traffic should B737 or A320 aircraft be served. The existing aircraft apron is not able to accommodate the parking of multiple B737 or A320 aircraft. The terminal lacks the ability to segregate domestic and international passengers. Also, airport security, including airport fencing, does not comply with international standards.

III. THE TECHNICAL ASSISTANCE

A. Impact and Outcome

13. The outcome of the proposed TA is a feasibility study for improvement of LPA and a project suitable for financing. The impact of the ensuing project will be increased tourism and economic growth in the project area. The improvement of LPA will facilitate tourism by enabling airlines to use the same type of aircraft at Louangphrabang, one of Lao PDR's primary tourism destinations, as are used for other tourism destinations in the GMS. This will enable Lao PDR to participate fully in the growth of tourism in the GMS. The project will also facilitate increased private sector participation in civil aviation in Lao PDR. The TA will examine potential options for private sector involvement in the project, including financing and subsequent operations. Private sector involvement in the improvement of LPA could serve as a catalyst for additional private sector involvement in the aviation sector and contribute to an improved investment climate in general.

B. Methodology and Key Activities

14. To prepare the ensuing project, the TA will include (i) preparing a traffic forecast for LPA; (ii) preparing the preliminary design and cost estimates for the preferred option for meeting the traffic forecast; (iii) examining possible institutional arrangements for implementing the project, including various forms of private sector involvement; (iv) a financial analysis, including an analysis of possible sources of private and public sector financing; (v) an economic analysis of the proposed option, including impact of increased tourism and subregional transport and cooperation; and (vi) analysis of the environmental and social impacts of the project, including resettlement effects, poverty analysis, and impacts on historical and cultural sites.

C. Cost and Financing

15. The total cost of the TA is estimated at \$710,000 equivalent. ADB will provide \$600,000 equivalent. The TA will be financed on a grant basis by ADB's TA funding program. The Government of Lao PDR will finance the balance of the cost equivalent of \$110,000 by providing required office accommodation and services, local communications, remuneration and per diem

for counterpart staff, and other items, mostly in kind. The Government has been advised that approval of the TA does not commit ADB to finance any ensuing project. The cost estimates for the TA are shown in Appendix 3.

D. Implementation Arrangements

16. The DCA will be the Executing Agency for the TA. It has the capacity to handle the TA successfully, given its prior experience with ADB projects. DCA's director general will be responsible for overall coordination among relevant ministries and agencies, consultants, and ADB, including extensive consultations with stakeholders and nongovernment organizations. The Government will set up a steering committee to oversee and coordinate all activities for carrying out the TA. The steering committee will be chaired by a vice minister of MCTPC and comprise representatives from DCA, MCTPC, Ministry of Finance, the Committee for Planning and Cooperation, National Tourism Authority, and Lao Airlines. The Government will make available a team of counterpart staff consisting of representatives from each division within DCA to help the consultants carry out the TA in a timely manner. DCA will provide office accommodation, local communication facilities, office support staff, and other administrative support.

17. An international consulting firm in association with national consultants will be selected and engaged by ADB, using the quality and cost-based selection method. ADB will adhere to its *Guidelines on the Use of Consultants* (April 2006, as amended from time to time) in engaging consultants. The simplified technical proposal procedure will be used to select the consultants. A total of about 17 person-months of international and 51 person-months of national consulting services will be required. In addition, there will be a lump-sum input of \$20,000 to cover engineering and other surveys to be implemented by the consulting firm. The consultants will have extensive experience in (i) transport economics, including related financial management; (ii) economic and financial evaluation of airport projects, including institutional arrangements and private sector involvement; (iii) airport engineering; and (iv) environmental, social, and poverty impact assessments, including resettlement. To facilitate the work and ensure that DCA gains technical expertise and knowledge, the consultant team will work closely with counterpart technical experts from DCA. DCA has agreed to provide the counterpart technical staff to assist with the necessary surveys and other work in a timely manner.

18. The TA will be implemented over about 7 months, beginning in April 2007 for completion by October 2007. The consultants will submit (i) an inception report within 1 month of commencing their services; (ii) an interim report within 3 months; (iii) a draft final report within 6 months that will include the environmental, social, and poverty impact assessment reports and resettlement plans, if necessary; and (iv) a final report within 3 weeks after receipt of comments from the Government and ADB. The Executing Agency, ADB, and consultants will meet in Lao PDR to review and endorse the inception, interim, and draft final reports. The consultants will conduct seminars for DCA staff and any other interested government organizations concerning the techniques, analysis, and findings of the TA. Equipment to be provided under the TA will be procured in accordance with ADB's *Procurement Guidelines*. Office equipment purchased will be transferred to MCTPC upon completion of the TA, and thereafter it will remain property of the Government.

IV. THE PRESIDENT'S DECISION

19. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of \$600,000 on a grant basis to the Government of the Lao People's Democratic Republic for preparing the Greater Mekong Subregion Louangphrabang Airport Improvement Project, and hereby reports this action to the Board.

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/Indicators ^a	Data Sources/Reporting Mechanisms	Assumptions and Risks
<p>Impact Increased tourism and economic growth in the project area.</p>	<ul style="list-style-type: none"> • Economic growth in Louangphrabang city and province increases. • Number of tourists in Louangphrabang increases. • International traffic increases at Louangphrabang Airport. 	<ul style="list-style-type: none"> • Government statistics • Department of Civil Aviation (DCA) air traffic statistics 	<p>Assumption</p> <ul style="list-style-type: none"> • Tourism in Southeast Asia continues to grow at recent rates. <p>Risk</p> <ul style="list-style-type: none"> • Major security incidents affect transport in Southeast Asia.
<p>Outcome</p> <ul style="list-style-type: none"> • Project design and feasibility study prepared to a level suitable for financing. 	<ul style="list-style-type: none"> • Memorandum of understanding signed with the Government. 	<ul style="list-style-type: none"> • Memorandum of understanding 	<p>Assumption</p> <ul style="list-style-type: none"> • The Government obtains necessary sources of funding.
<p>Outputs</p> <p>1. Technical assessments completed.</p> <p>2. Project design requirements accomplished.</p>	<ul style="list-style-type: none"> • Interim report and a draft final report submitted to the Government and ADB by July 2007 and September 2007, respectively. • Environmental and social (including resettlement and poverty) analyses, and results-based monitoring system submitted to the Government and ADB by September 2007. 	<ul style="list-style-type: none"> • Asian Development Bank (ADB) document registration • Government document registration • Technical assistance review meetings to report findings of the consultants at inception, interim, and draft final report stages. 	<p>Assumption</p> <ul style="list-style-type: none"> • Effective stakeholder participation and ownership are developed.

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
<p>Activities with Milestones</p> <p>1.1 Prepare traffic forecast for Louangphrabang Airport (May 2007). 1.2 Prepare preliminary design for the Project (July 2007). 1.3 Conduct economic, financial, and distribution analysis (September 2007). 2.1 Carry out consultations with stakeholders, including government officials, project beneficiaries, and affected people, including women and the poor (June 2007). 2.2 Conduct a financial management assessment of DCA (July 2007). 2.3 Complete environmental, social, and poverty analysis (September 2007). 2.4 Finalize project design, monitoring framework, and results-based monitoring system, including performance indicators (September 2007). 2.5 Recommend institutional structure and sources of financing for the project (September 2007).</p>		<p>Inputs</p> <ul style="list-style-type: none"> • 17 person-months of international and 51 person-months of national consulting services • ADB: \$600,000 • Government: \$110,000 	

ADB = Asian Development Bank, DCA = Department of Civil Aviation.

^a The indicators are not time bound and quantifiable at this stage, and will emerge as a result of the technical assistance.

INITIAL POVERTY AND SOCIAL ANALYSIS

A. Linkages to the Country Poverty Analysis

Is the sector identified as a national priority in country poverty analysis?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the sector identified as a national priority in country poverty partnership agreement?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>Contribution of the sector or subsector to reduce poverty in Lao PDR:</p> <p>Poverty reduction in Lao PDR is strongly correlated with economic growth. International tourism provides significant opportunity for increasing economic growth, and improvements in civil aviation infrastructure are critical for attracting international tourists. Expanding tourism will generate economic activity in such labor-intensive industries as construction and services (e.g., restaurants and hotels) and will also increase demand for locally produced handicrafts, which is expected to generate income-earning activities and raise incomes for women.</p>			

B. Poverty Analysis

Targeting Classification: General intervention

<p>What type of poverty analysis is needed?</p> <p>Poverty and social issues in the project area will be evaluated based on ADB's <i>Handbook on Poverty and Social Analysis</i> (2001). This evaluation will describe poverty incidence in the project area, and assess both the causes of poverty and the extent to which the proposed project will address them. The poverty analysis will include analysis of constraints and the ability of poor and vulnerable groups to benefit from economic growth expected to arise from increased tourism.</p>
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C. Participation Process

<p>Is there a stakeholder analysis? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No. To be prepared under proposed technical assistance.</p> <p>A participatory stakeholders' analysis will be an integral part of social and gender analysis, as well as of a resettlement plan and an ethnic minority development plan, if these are required. Participatory appraisal with various stakeholders will be undertaken as part of social assessment. Individual and group consultations will be conducted during project preparation.</p> <p>Is there a participation strategy? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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D. Gender Development

<p>Strategy to maximize impacts on women:</p> <p>The socioeconomic data will be disaggregated by gender and ethnic minority group (if relevant). Data on resettlement issues will be disaggregated by gender. A gender strategy will be prepared for ethnic minority groups and households affected by resettlement. A socioeconomic assessment will examine the extent to which increased tourism will impact on women's job and income-earning opportunities, as well as on poor women's wage employment.</p> <p>Has an output been prepared? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>

E. Social Safeguards and Other Social Risks

Item	Significant/ Not Significant/ None	Strategy to Address Issues	Plan Required
Resettlement	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	Resettlement impact is expected to be minor.	<input type="checkbox"/> Full <input checked="" type="checkbox"/> Short <input type="checkbox"/> None
Affordability	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	Airfares are expected to decrease with the greater number of flights and larger aircraft.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Labor	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Indigenous Peoples	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	The technical assistance will determine if any indigenous peoples will be affected, but, since the project area is the Louangphrabang Airport and immediate vicinity, little or no impact is expected.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Other Risks and/or Vulnerabilities	<input type="checkbox"/> Significant <input type="checkbox"/> Not significant <input checked="" type="checkbox"/> None		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

COST ESTIMATES AND FINANCING PLAN
(\$'000)

Item	Total Cost
A. Asian Development Bank Financing^a	
1. Consultants	
a. Remuneration and Per Diem	
i. International Consultants	374.0
ii. National Consultants	77.0
b. International and Local Travel	30.0
c. Reports and Communications	8.0
2. Equipment	10.0
3. Training, Seminars, and Conferences	6.0
4. Surveys	20.0
5. Miscellaneous Administration and Support Costs	10.0
6. Representative for Contract Negotiations	5.0
7. Contingencies	60.0
Subtotal (A)	600.0
B. Government Financing	
1. Office Accommodation and Transport	70.0
2. Remuneration and Per Diem of Counterpart Staff	30.0
3. Others	10.0
Subtotal (B)	110.0
Total	710.0

^a Financed by Asian Development Bank's technical assistance funding program.
Source: Asian Development Bank estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

1. The terms of reference for the consultants will include, but not necessarily be limited to, the following:
 - A. **Technical Aspects** (5 person-months of international and 10 person-months of national consultants)
 - (i) review and take into account reports prepared under ADB TA 3968-LAO,¹ including the updated Civil Aviation Master Plan; International Civil Aviation Organization (ICAO) studies undertaken by ICAO and other funding agencies; and the business plans of the Lao Airports Authority (LAA), Lao Airlines, and other relevant airlines.
 - (ii) review ICAO's report for improvement of operational safety and security at Louangphrabang Airport (LPA) and the current status of safety and standards; pavements, buildings, and other infrastructure; communication, navigation aid, and air traffic services facilities; electrical, mechanical, and lighting installations; as well as adequacy of fire and rescue vehicles, equipment, supplies, and personnel. They will include necessary improvements into the design.
 - (iii) revise and prepare outline designs and prepare technical specifications and drawings, taking into account the existing designs, current engineering practices of the Department of Civil Aviation (DCA), ICAO Standards and Recommended Practices, and international best practices.
 - (iv) prepare a detailed list of necessary materials, facilities, equipment, and work. They will estimate the costs of these, and will separate them into foreign and local costs.
 - (v) outline project implementation and procurement arrangements, including contract packaging, and prepare a project implementation schedule, taking into account the experience from DCA's previous and ongoing airport improvement projects and local abilities to carry out the civil works.
 - (vi) determine an adequate project management organization and the inputs in terms of expertise and person-months required for preconstruction activities and construction supervision. Then they will prepare terms of reference for consulting services required for project implementation and for the operation and maintenance of airport facilities and equipment acceptable to ICAO standards after completion of the project.
 - (vii) prepare an operation and maintenance program for LPA that identifies approaches suitable for mainstreaming appropriate technologies based on local labor to enhance employment opportunities from the upgrading and maintenance
2. The consultants will
 - (i) review and take into account reports prepared under ADB TA 3968-LAO,¹ including the updated Civil Aviation Master Plan; International Civil Aviation Organization (ICAO) studies undertaken by ICAO and other funding agencies; and the business plans of the Lao Airports Authority (LAA), Lao Airlines, and other relevant airlines.
 - (ii) review ICAO's report for improvement of operational safety and security at Louangphrabang Airport (LPA) and the current status of safety and standards; pavements, buildings, and other infrastructure; communication, navigation aid, and air traffic services facilities; electrical, mechanical, and lighting installations; as well as adequacy of fire and rescue vehicles, equipment, supplies, and personnel. They will include necessary improvements into the design.
 - (iii) revise and prepare outline designs and prepare technical specifications and drawings, taking into account the existing designs, current engineering practices of the Department of Civil Aviation (DCA), ICAO Standards and Recommended Practices, and international best practices.
 - (iv) prepare a detailed list of necessary materials, facilities, equipment, and work. They will estimate the costs of these, and will separate them into foreign and local costs.
 - (v) outline project implementation and procurement arrangements, including contract packaging, and prepare a project implementation schedule, taking into account the experience from DCA's previous and ongoing airport improvement projects and local abilities to carry out the civil works.
 - (vi) determine an adequate project management organization and the inputs in terms of expertise and person-months required for preconstruction activities and construction supervision. Then they will prepare terms of reference for consulting services required for project implementation and for the operation and maintenance of airport facilities and equipment acceptable to ICAO standards after completion of the project.
 - (vii) prepare an operation and maintenance program for LPA that identifies approaches suitable for mainstreaming appropriate technologies based on local labor to enhance employment opportunities from the upgrading and maintenance

¹ ADB. 2002. *Technical Assistance to the Lao People's Democratic Republic for Preparing the Northern Airports Improvement Project*. Manila.

of airports, provide a quantitative estimate of employment gains, and identify training needs and contract arrangements.

B. Economic Analysis (3 person-months of international and 9 person-months of national consultants)

3. The consultants will

- (i) prepare an air transport forecast for international and domestic traffic in aircraft, passengers, and freight at Louangphrabang Airport, taking into account the national and regional tourism development plan and other relevant development plans and strategies. They will identify assumptions used in creating the demand forecast and conduct relevant sensitivity analysis.
- (ii) carry out in-depth economic analysis of the project, including calculation of the economic rate of return, taking into account economic costs and benefits; as well as conduct relevant sensitivity analyses of identified macroeconomic, sector, and project risks. The analysis will be undertaken in accordance with Asian Development Bank's (ADB) *Guidelines for the Economic Analysis of Projects* and it should include examination of the impact of greater tourism and trade on the local and national economies, as well as of any impact on subregional transport and cooperation.
- (iii) using a detailed analysis of economic development and benchmarking of beneficiaries and benefits, conduct a distributional analysis in accordance with ADB's approach to integrating poverty impact into economic analysis of projects.² They will describe expected benefit distributions in quantitative and qualitative terms and conduct sensitivity analysis with respect to assumptions and risks.
- (iv) specify indicators to monitor the project benefits, including (a) establishing procedures, (b) providing cost estimates for benefit monitoring and evaluation in terms of ADB's guidelines for benefit monitoring and evaluation,³ and (c) developing a baseline database for socioeconomic parameters.
- (v) prepare, according to ADB standards, a design and monitoring framework that clearly identifies the goals and objectives of the proposed project, required inputs, targets or benchmarks, monitoring mechanisms, and potential risks and assumptions.

C. Financial Analysis (4 person-months of international and 9 person-months of national consultants)

4. In accordance with ADB's guidelines for the financial governance and management of investment projects,⁴ the consultants will

² ADB. 2002. *Handbook for Integrating Risk Analysis in the Economic Analysis of Projects*. Manila.

³ ADB. 1997. *Benefit Monitoring and Evaluation: A Handbook for Bank Staff, Staff of Executing Agencies and Consultants*. Manila.

⁴ ADB. 2002. *Guidelines for the Financial Governance and Management of Investment Projects Financed by ADB*. Manila.

- (i) carry out in-depth financial analysis of the project, including (a) calculating the financial rate of return and weighted average cost of capital, taking into account financial costs and benefits, and (b) conducting relevant sensitivity analysis of identified project risks.
- (ii) assess various fees and charges on aircraft and passengers (landing charge, parking charge, radio facility charge, navigation charge, and passenger charge); assess the financial sustainability of LPA to ensure sufficient funding for operation and maintenance, servicing debt, and reasonable capital expenditure; review LPA's current financial status and update LPA's financial projections for Louangphrabang Airport for the next 10 years based on the Civil Aviation Master Plan.
- (iii) assess the financial and operational autonomy of LPA and recommend an action plan to retain sufficient funding for operation and maintenance, debt servicing, and reasonable capital expenditure for all airports.
- (iv) examine possible institutional arrangements for implementing the project, including various forms of private sector involvement and necessary arrangements with the existing concessionaire, and recommend the preferred institutional arrangements. They will also recommend steps that can be taken to enhance private sector participation.
- (v) review the potential for private sector participation in financing the project.
- (vi) undertake a financial management assessment highlighting strengths and weaknesses of the financial management system at Louangphrabang Airport and suggest actions for addressing weaknesses, if any.

D. Environmental Impact Analysis (1 person-month of international and 7 person-months of national consultants)

5. The consultants will

- (i) prepare an initial environmental examination and summary initial environmental examination in accordance with Ministry of Communication, Transport, Post, and Construction environmental guidelines, and ADB's environment policy,⁵ and additional guidelines available on ADB's website.⁶ Particular attention should be given to the impact on historical and cultural sites.
- (ii) estimate operations-phase ambient levels of noise, vibration, and air emissions at the nearest sensitive receptors, e.g., nearby residential areas. They will compare the estimates to appropriate noise, vibration, and air emission standards. If the estimation exceeds relevant standards, they will prepare a plan to mitigate adverse impacts.

⁵ ADB. 2002 *Environment Policy of the Asian Development Bank*. Manila.

⁶ Environmental Categorization and Rapid Environmental Assessment Checklists. Available: http://www.adb.org/documents/Guidelines/Environmental_Assessment/eaguidelines002.asp

- (iii) estimate costs of environmental mitigation measures, project monitoring, and capacity development.

E. Social and Poverty Impact Analysis (4 person-months of international and 16 person-months of national consultants)

6. The consultants will

- (i) collect quantitative and qualitative data in the field and prepare socioeconomic profiles of the affected communities in the project area in accordance with (a) relevant ADB policies and operations manuals, including those for involuntary resettlement; and (b) the requirements of the Lao PDR, including Decree 192/PM on Compensation and Resettlement (2005), and Implementing Regulations and Technical Guidelines (2005). The consultants will use ADB guidelines and publications, including the handbooks on poverty and social analysis and resettlement as guides.⁷ The profiles shall cover gender and local ethnic minorities. The gender strategy shall include gender-specific livelihood programs for the resettlement plan; awareness raising for women on trafficking and HIV/AIDS; a training needs and training plan for the Ministry of Communication, Transport, Post, and Construction in implementing the gender strategy; a detailed budget for the strategy with full terms of reference; and an implementation schedule.
- (ii) evaluate poverty and social issues in the project area. They will describe the incidence of poverty and assess the causes of poverty and extent to which the project will address them. They will identify potential barriers keeping the poor from benefiting from economic growth and recommend interventions that could maximize poverty reduction (seasonal and long term) for poor households. They will estimate (a) wage job opportunities (person-days) for poor households during construction, and (b) general job opportunities in improving the transport network. The presence of ethnic minorities or other vulnerable groups within the zone of influence should be determined together with the potential impact of the project on them. When negative impacts are identified, mitigation measures will be developed and their costs estimated.
- (iii) review relevant development plans, as well as poverty reduction and sector strategies, by government agencies and development institutions and examine linkages and synergy effects for economic development, trade, and poverty reduction.
- (iv) analyze the potential poverty impact of the project, including the impact from increased tourism and other economic activity arising from the project.
- (v) undertake a social and gender analysis as per ADB's policies on involuntary resettlement, indigenous peoples, as well as gender and development and their respective operations manuals.⁸ The consultants will use relevant ADB guidelines and publications including the gender checklist on resettlement and

⁷ ADB. 2001. *Handbook on Poverty and Social Analysis: A Working Document*. Manila; ADB. 1998. *Handbook on Resettlement: A Guide to Good Practice*, Manila.

⁸ ADB. 1995. *Involuntary Resettlement*, Manila; ADB. 1998. *Policy on Indigenous Peoples*. Manila; ADB. 2003. *Gender and Development*. Manila.

the guide on consultation and participation.⁹ They will review and assess the impacts of land acquisition or loss of land use on project-affected people by gender and ethnic group (in terms of loss of homes or of agricultural and other types of land, as well as loss of access to current income-generating activities), including impacts caused by permanent or temporary land acquisition.

- (vi) prepare a resettlement plan for the project in accordance with relevant ADB policies and operations manuals, including its involuntary resettlement policy and operations manual (OMF2) with regard to involuntary resettlement. The consultants will use ADB's handbook on resettlement as a guide. Preparation should fully involve all stakeholders, and include executing and implementing agencies. It should take into account the requirements of Decree 192/PM on Compensation and Resettlement (2005), and Implementing Regulations and Technical Guidelines (2005).
- (vii) develop a time-bound ethnic minority development plan (EMDP), if the social analysis determines that ethnic minorities are likely to be affected significantly by the project or that they are disadvantaged or vulnerable because of their social or cultural identities. The EMDP will include specific measures and approaches to address the concerns of the ethnic minorities. It must be developed in accordance with ADB's policy on indigenous people. Preparation should fully involve stakeholders and include executing and implementing agencies. The consultants will identify areas for institutional strengthening of the Department of Roads in implementing the EMDP and recommend capacity building for that department. They will develop livelihood programs, a consultation process, information disclosure, and a grievance process if the ethnic minority groups are to be resettled. The EMDP must be detailed enough to allow implementation of all measures proposed and include details of budgets, implementation arrangements, and implementation schedules.

⁹ ADB. 2003. *Gender Checklist: Resettlement*. Manila; ADB. 2006 *Strengthening Participation for Development Results: A Staff Guide to Consultation and Participation*. Manila.