

ASIAN DEVELOPMENT BANK

TAR:LAO 35293

TECHNICAL ASSISTANCE
(Financed by the Japan Special Fund)

TO THE

LAO PEOPLE'S DEMOCRATIC REPUBLIC

FOR PREPARING THE

NORTHERN AIRPORTS IMPROVEMENT PROJECT

November 2002

CURRENCY EQUIVALENTS

(as of 15 October 2002)

Currency Unit	–	Kip (KN)
KN1.00	=	\$0.000092
\$1.00	=	KN10,850

ABBREVIATIONS

ADB	–	Asian Development Bank
CAA	–	Civil Aviation Act
CAMP	–	Civil Aviation Master Plan
DCA	–	Department of Civil Aviation
ICAO	–	International Civil Aviation Organization
IEE	–	initial environmental examination
LAA	–	Lao Airports Authority
Lao PDR	–	Lao People's Democratic Republic
MCTPC	–	Ministry of Communications, Transport, Post and Construction
O&M	–	operation and maintenance
TA	–	technical assistance
UNDP	–	United Nations Development Programme

NOTES

- (i) The fiscal year (FY) of the Government ends on 30 September.
- (ii) In this report, "\$" refers to US dollars.

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I. INTRODUCTION

1. During the 2001 Country Programming Mission, the Government of the Lao People's Democratic Republic (Lao PDR) requested the Asian Development Bank (ADB) for a project preparatory technical assistance (TA) to prepare a feasibility study for improving the small airports in the country. In July 2002, an ADB fact-finding mission visited the Lao PDR and reached an understanding with the Government on the objectives, scope, cost, and implementation arrangements of the TA. The TA has been included in ADB's 2002 country strategy and program.¹

II. ISSUES

2. The Lao PDR is landlocked between the Peoples' Republic of China, Cambodia, Myanmar, Thailand, and Viet Nam. Two-thirds of its land area is covered by forest and woodland accommodating an estimated population of about 5.6 million people. Improved transport facilities are crucial for the land-locked and mountainous country. In the absence of a railway system and access to the sea, the country depends heavily on road network followed by civil aviation. Rural accessibility is poor, with half of Lao PDR villages inaccessible during the rainy season. Lack of physical access is a severe impediment to delivery of social services and market access. The development of civil aviation transport infrastructure is also crucial to promote national, regional, and international tourism in the Lao PDR.

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 Aviation and the Lao Airports Authority (LAA). DCA has eight divisions² plus LAA. Even though LAA is essentially an operating division, it is not independent of DCA but under DCA. At present, Lao PDR does not have one comprehensive Civil Aviation Act (CAA). Instead, the civil aviation sector is governed by the functions of DCA under MCTPC designated by the Prime Minister's Decree. The draft CAA recommended by the United Nations Development Programme (UNDP) and the International Civil Aviation Organization (ICAO)³ has been translated into Lao language and MCTPC has commenced interministry consultation. Government approval of the draft CAA for enactment at the National Assembly is expected by early 2003.

4. LAA has eight sections⁴ and is responsible for the operation and maintenance (O&M) of Vientiane international airport, two regional airports (at Luang Prabang and Pakse), and two provincial airports (at Savannakhet and Luang Namtha). All other provincial small airports are the responsibility of the provincial governments with DCA's technical consultation. The Vientiane international terminal has been operated by a joint venture, the Lao-Japan Airport Terminal Services Co.,⁵ since June 1999. A proposal for restructuring LAA by splitting it into two entities responsible for airports (LAA) and air traffic services (Lao Air Traffic Management, LATM) is being considered for Government approval by the end of 2002. The change aims to improve the safety and O&M of airports. Both entities will collect revenues generated from their activities and

¹ The TA first appeared in *ADB Business Opportunities* (Internet edition) on 22 February 2002.

² Air Navigation, Air Transport and Safety, Aerodromes, Aeronautical Telecommunications, Planning and Finance, Administration and Personnel, Airport Improvement Project, and Civil Aviation Training Center.

³ Commercial Air Transport Policy with Emphasis on Aviation Legislation and Airline Finances and Operations, UNDP/ICAO Project, LAO/98/015, November 2000.

⁴ Air Traffic Services, Passenger Terminal Operation, Electrical, Communications and Operations, Technical Supply, Fire Station, Administration, and Finance.

⁵ The government owns 51% and two Japanese companies own 49%.

retain from that an amount approved by the government for O&M expenses. DCA expects that this is a first step toward granting full autonomy to LAA and LATM.

5. The national airline, Lao Aviation, a state-owned company,⁶ provides both domestic and international services. Lao Aviation is presently the only airline on international routes approved by the Government. Other international services to the Lao PDR are operated by Bangkok Airways, China Yunnan Airlines, Mandarin Airlines, Royal Air Cambodia, Thai Airways International, and Vietnam Airlines. Lao Aviation is also the only operator on all domestic routes. Lao Aviation owns a fleet of 10 aircraft, including 3 Y-7s (50 seats), 4 Y-12s (17 seats), 2 ATR-72s (70 seats), and 1 helicopter.⁷ Lao Aviation operates on several international and domestic routes using the ATR72. In April 2002, Air France Consulting entered into a management arrangement with Lao Aviation to provide technical assistance to improve all aspect of Lao Aviation's operation. The consultant will also assist Lao Aviation to prepare a strategy to set up a joint venture (An indicative allocation of equity might be 40% by the Government and 60% by foreign and domestic investors.) The timetable will be dependent on the interest of potential investors.

6. Three airports handle international traffic in the Lao PDR: Vientiane, the main international gateway, and Luang Prabang and Pakse, which accept regional (Southeast Asia) traffic, and provide customs, immigration, and quarantine services. The three main airports together with Savannakhet airport were upgraded under ADB's Loan 1266.⁸ In addition, 10 recognized minor airports are located at the provincial capitals.⁹ Six of them (Houeisai, Luang Namtha, Oudomxay, Sam Nua, Sayaboury, and Xieng Khouang) are operating and four (Attapeu, Phongsaly,¹⁰ Saravane, and Thakhek) are not.

7. DCA's activities generate significant surplus. These surpluses mainly come from the air navigation charges on overflights,¹¹ which accounted for about 88% (\$15.2 million) of the total revenues of \$17.2 million during 2001. Other revenues come from landing and navigation fees for aircraft, passenger service charges, and other rental incomes. DCA's total operating expenses is about \$437,000, equivalent to 2.5% of the total revenues during 2001. Only about \$143,000, equivalent to 0.8% of the total revenues, was directed toward maintenance expenses in 2001. In particular, the actual annual budget allocation is well below the requested budget.¹² Consequently, maintenance of airport facilities and equipment has not been up to international standards.

8. During the last 10 years (1992–2001), the international passenger traffic in the Lao PDR has grown at an annual average rate of 10.2%, higher than the world average (about 7.1%). However, as a consequence of the global economic downturn in 2001 and the events of

⁶ The board comprises seven directors: Vice-minister of MTCPC (Chairman), Vice-minister of Finance, Vice-President of Planning and Investment Committee, Deputy Director of Security Department of the Ministry of Defense, and Director General of DCA, President of Lao Aviation, and a representative of Lao Aviation staff.

⁷ Two aircraft (one Y7 and one helicopter) are grounded and one Y-12 is waiting for overhaul.

⁸ ADB. 1993. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to Lao PDR for the Airports Improvement Project*. Manila.

⁹ Upgrading of infrastructure of 10 minor airports was included in the original scope of Loan 1266. But this scope was deleted during project implementation in 1997 due to increased costs for improving four major airports.

¹⁰ Phongsaly airport is currently under redevelopment for an airfield including access road and a bridge in an amount of \$1.25 million with funding from the World Bank under Credit No. 3131.

¹¹ Air routes pass over Lao PDR airspace are Bangkok-Hong Kong, Bangkok-Manila, Bangkok-Hanoi, and Hanoi-New Delhi.

¹² For the fiscal year 2002, LAA requested a total of KN13.6 billion from MOF for O&M costs, but only KN4.5 billion was budgeted by the Ministry of Finance.

September 11, 2001, the number of passengers dropped significantly in November to December 2001. From January 2002, the number started to increase again, but the rate of increase is slightly lower than that of the previous 2 years. Domestic passenger traffic has grown at an annual average rate of 7.0% during the same period. The number of domestic passengers peaked at 273,366 in 1999 and slightly decreased to 252,938 in 2002 due to (i) improvement in road conditions in the southern provinces, (ii) domestic tariff increases in the Lao nationals in 1999, and (iii) safety concerns about Lao Aviation operations as a result of three accidents at small airports. The LAA business plan (2002–2006) projected that international passenger traffic will grow at an average rate of 10% with more frequent flights as a result of improving four major airports since 2000 and commencing of regional operation at Pakse. Domestic passenger traffic is projected to grow much more slowly due to recent significant increase in domestic tariffs for Lao nationals.¹³

9. The 1991 Civil Aviation Master Plan (CAMP) for 1991–2000 was prepared by UNDP-ICAO and reviewed 2 years later under ADB funding.¹⁴ ICAO has also provided assistance for drafting aviation legislation and airline finances and operations, funded by UNDP in November 2000 (footnote 3). As the current CAMP is now approaching 10 years of age, and the physical state of various airports, traffic demand patterns, and institutional structure have changed substantially, the government requested ADB to update the CAMP until 2013.

10. Accessibility to provincial areas is limited due to lack of road network. In addition, air transport to provincial locations in Lao PDR is generally considered unsafe and unreliable.¹⁵ Three accidents have occurred recently at or on approach to these airports (two at Sam Nua and one at Xieng Khoung) and one at Vientiane airport since 1995. Improving the Lao PDR's civil aviation safety performance is critical to the development of these provincial locations and promotion of tourism in the region, given both higher concentration of the poor in these regions and the likely lack of development of road network in the medium term (10–20 years). According to the country strategy and program, ADB operations will primarily focus on northern region of the country. The proposed Mekong Tourism Development Project includes improving Luang Namtha airport as one component for developing of national and regional tourism in the Lao PDR. Improving the remaining small airports in the northern region to acceptable international safety and security standards will be crucial to providing market access and access to government services and investment that will have an impact on the living standards in this region. Using savings from Loan 1266 (footnote 8), ICAO undertook a study to identify measures for safety and security improvement in small airports.

III. THE TECHNICAL ASSISTANCE

A. Purpose and Output

11. The main objectives of the study are to (i) undertake feasibility studies for improving six small airports (in Bokeo, Houaphan, Oudomxai, Phongsaly, Sayaboury, and Xieng Khouang provinces) in the northern Lao PDR; and (ii) update and upgrade the CAMP to provide the framework for sustainable and effective development of the civil aviation sector.

¹³ In May 2002, the government increased average tariffs from \$0.08/seat/km to \$0.20, bringing the tariff near to cost recovery level (at 65% capacity utilization) by a 3-step increase until December 2002 using an exchange rate of KN9,500/\$. The tariff for foreigners will not be changed from \$0.23/seat/km.

¹⁴ ADB. 1992. *Technical Assistance to Lao PDR for the Review of the Civil Aviation Master Plan*.

¹⁵ UNDP has issued an embargo on traveling by Y7 and Y12 aircraft on domestic routes.

B. Methodology and Key Activities

12. The scope of the project preparatory TA includes (i) updating and upgrading the CAMP; (ii) revising and preparing outline designs and cost estimates for improving small airports; (iii) preparing a schedule for implementing improvements based on appropriate levels of service for operators and users; (iv) preparing the economic and financial evaluation for each airport; (v) developing appropriate procurement packaging and procedures to facilitate project implementation; (vi) assessing the development impact on poverty; and (vii) preparing social and environmental assessment and identifying necessary mitigation measures, if any, especially for the poor. A summary of initial poverty and social analysis is in Appendix 1.

13. The consulting services will be carried out in two phases over 12 months. The first phase will update and upgrade the CAMP for the next 10 years to provide the framework for sustainable and effective development of the civil aviation sector, to support equitable economic development in the Lao PDR. After the Government agrees to the proposed CAMP, the second phase will prepare feasibility studies for improving six small airports in northern Lao PDR—at Bokeo (Houeisei), Huaphan (Xam Nua or Vieng Xay), Oudomxay, Phongsaly, Sayaboury, and Xieng Khouang (Phonsavanh)—to enhance safety and security, and efficiency of operation.

C. Cost and Financing

14. The total cost of TA is estimated at \$590,000 equivalent comprising \$398,000 in foreign exchange and \$192,000 in local currency equivalent. ADB will provide \$500,000 equivalent to finance the entire foreign exchange cost and \$102,000 equivalent of the local currency cost. The TA will be financed on a grant basis by the Japan Special Fund, funded by the Government of Japan. The Government has agreed to finance \$90,000 in kind, consisting of services to be provided (para. 15). Details of the cost estimates and financing plan for the TA are in Appendix 2. The Government has been advised that approval of the TA by the ADB does not commit ADB to finance ensuing project.

D. Implementation Arrangements

15. The Executing Agency for the TA will be the Department of Civil Aviation (DCA) within MCTPC. DCA has the capacity to handle the TA successfully, given its prior experience with ADB projects. The director general of DCA 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 updating and upgrading the CAMP. The steering committee will be chaired by a Vice Minister of MCTPC and comprise representatives from DCA, MCTPC, Ministry of Finance, Committee for Planning and Cooperation, National Tourism Authority, and Lao Aviation. The Government will make available a team of counterpart staff consisting of representatives from each division within DCA and provincial governments to help the consultants carry out the feasibility studies for six small airports in a timely manner. DCA will provide office accommodation, local communication facilities, office support staff, and other administrative support including arrangements for the consultant's travel outside Vientiane.

16. The TA will require about 13 person-months of services by a team of international consultants and about 9 person-months by domestic consultants. The study will be carried out by a multidisciplinary team of experts with experience in airport planning and engineering, air transport economics and poverty analysis, aviation management and financial analysis, and

social and environment assessment. Domestic consultants will be hired to carry out detailed surveys and consultations. The team of consultants, from an international consulting firm in association with domestic consultants, will be engaged using ADB's quality- and cost-based selection procedures and according to ADB's *Guidelines on the Use of the Consultants* and other arrangements satisfactory to ADB on the engagement of domestic consultants. The outline terms of reference for consultants that will be required are in Appendix 3.

17. The consultants will commence services in March 2003 and complete by February 2004. The consultants will submit an inception report outlining their approach and methodology within 3 weeks of the commencement of the services for the overall TA. A draft final report for updating and upgrading the CAMP will be submitted within 3 months of the commencement of the services. The draft final report for CAMP will be reviewed by ICAO to ensure conforming to ICAO requirements and harmonization with neighboring countries' civil aviation policy. For preparation of feasibility studies, an interim report will be submitted within 8 months of commencement of the services and a draft final report within 10 months of commencement of the services. Each final report for updating and upgrading the CAMP and feasibility studies will be submitted within 1 month after the corresponding tripartite meetings. The TA is expected to be completed by May 2004.

IV. THE PRESIDENT'S DECISION

18. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of \$500,000 on a grant basis to the Government of the Lao People's Democratic Republic for preparing the Northern Airports Improvement Project, and hereby reports this action to the Board.

SUMMARY INITIAL POVERTY AND SOCIAL ANALYSIS

A. Linkages to the Country Poverty Analysis

Sector identified as a national priority in country poverty analysis?	Yes	Sector identified as a national priority in country poverty partnership agreement?	Yes
<p>Contribution of the sector/subsector to reduce poverty in the Lao People's Democratic Republic (Lao PDR).</p> <p>Poverty reduction in the Lao PDR is strongly correlated with economic growth. Further, poverty reduction in remote and poor provinces depends on domestic linkages and integration with a wider range of markets. The ability of these provinces to capture the benefits of economic growth and international trade will depend on lifting domestic trade constraints that increase transportation costs and prices of goods. Improvements in civil aviation will improve access to domestic and international markets, thereby enhancing geographically balanced economic growth. As the Lao PDR lifts foreign trade constraints, international trade flows and associated economic growth will have a more equitable geographical distribution. Improved price incentives for consumer goods and producer inputs resulting from the reduction in physical trade barriers will raise local investments and generate more income-earning opportunities.</p> <p>Inadequate infrastructure and airport safety are also major constraints for tourism expansion and development of civil aviation removes key barriers to tourism expansion and associated benefits. Expansion in tourism raises demand for locally produced handicrafts which is expected to generate income-earning activities and raise incomes for women.</p> <p>Enhanced access will also remove a key cost barrier for addressing shortages in food and other items in deficit provinces while providing market for surplus producing provinces. Development of civil aviation will improve the provinces' ability to attract new investments as risks and cost of information are reduced. Cost efficiency in providing social services to less accessible areas will also be improved.</p>			

B. Poverty Analysis

Proposed Poverty Classification:

Beneficiary nonspecific intervention

Thematic Classification: Economic growth

What type of poverty analysis is needed?

- Socioeconomic profile of province population.
- Distributional analysis of expected benefits and resulting economic growth: pro-poor effects of economic growth.
- Analysis of constraints and the ability of poor and vulnerable groups to benefit from economic growth, trade, and increased integration.
- Analysis of potential adverse impacts and socioeconomic profile of area under the project

C. Participation Process

Stakeholder analysis: Identification of the socioeconomic profile of project beneficiaries, including ethnic minorities, through participatory field appraisal. Resettlement should be conducted in a participatory manner including affected people and local and central government agencies.

Participation strategy required: No. But preproject design will include consultations with affected people and participation will be part of resettlement plan.

D. Potential Issues

Subject	Significant, Not Significant, Uncertain, None	Strategy to Address Issues	Plan Required
Resettlement	Significant	Participatory process	Yes (full RP)
Gender	Not Significant	Participatory field consultation	Not known
Affordability	None		None
Labor	Uncertain	Local labor requirements and safety measures	Not known
Indigenous People	Uncertain	Issues to be reviewed on the basis of socio-economic profile and consultations	Not known
Other Risks/ Vulnerabilities		Feasibility study will include risk analysis	Not known

COST ESTIMATES AND FINANCING PLAN
(\$'000)

Item	Foreign Exchange	Local Currency	Total Cost
A. Asian Development Bank Financing^a			
1. Consultants			
a. Remuneration and Per Diem			
i. International Consultants	256.0	0.0	256.0
ii. Domestic Consultants	0.0	52.0	52.0
b. International and Local Travel	65.0	5.0	70.0
c. Reports and Communications	5.0	0.0	5.0
2. Surveys	0.0	10.0	10.0
3. Other Services			
a. Vehicle Hire	0.0	10.0	10.0
b. Local Office Support	0.0	5.0	5.0
c. Translation	0.0	5.0	5.0
4. International Civil Aviation Organization's Consultation	10.0	0.0	10.0
5. Representative for Contract Negotiations	4.0	0.0	4.0
6. Contingencies	58.0	15.0	73.0
Subtotal (A)	398.0	102.0	500.0
B. Government Financing			
1. Office Accommodation	0.0	35.0	35.0
2. Remuneration and Per Diem of Counterpart Staff	0.0	40.0	40.0
3. Office Supplies	0.0	10.0	10.0
4. Contingencies	0.0	5.0	5.0
Subtotal (B)	0.0	90.0	90.0
Total	398.0	192.0	590.0

^a Financed by the Japan Special Fund, funded by the Government of Japan.
Source: Asian Development Bank estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

1. Throughout the work the consultant will pay systematic attention to (i) safety and security; (ii) economic efficiency; (iii) sustainability; and (iv) development impact, particularly with respect to impacts on poverty and adverse social impacts on vulnerable groups. The terms of reference for the consultant will include, but not necessarily be limited to, the following:

A. Updating and Upgrading of the Civil Aviation Master Plan (CAMP) (4 person-months of international and 2 person-months of domestic consultants)

2. The consultant will examine the civil aviation sector in its totality and identify a sectorwide strategy for development. This will assess required service standards, future demand on the aviation system, and economic development in the Lao People's Democratic Republic (Lao PDR), requirements for infrastructure development, and institutions and human resources necessary to ensure delivery against the identified standards. The consultant will

- (i) review the CAMP undertaken by the International Civil Aviation Organization (ICAO) and consolidate all studies undertaken by ICAO and other funding agencies, and the business plans of the Lao Airports Authority (LAA) and Lao Aviation;
- (ii) prepare a 10-year air transport forecast for international and domestic traffic in aircraft, passengers, and freight at all airports and international overflights, taking into account the national and regional tourism development plan and other relevant development plans and strategies; identify assumptions on demand forecast and conduct relevant sensitivity analysis;
- (iii) assess the revenue generated by airports and air navigation services and make appropriate recommendations for the development and attainment of proper financial returns, while conforming to ICAO policies and guidelines; prepare a forecast of revenues and expenditures that can be anticipated at all airports and air navigation services over a 10-year period, including a long-term maintenance action plan for airport facilities and equipment conforming to ICAO Standards and Recommended Practices;
- (iv) review relevant development plans, and poverty reduction and sector strategies by government agencies and development institutions and examine linkages and synergy effects for economic development, trade, and poverty reduction; highlight potential trade-offs of achieving economic efficiency with poverty reduction and social impacts;
- (v) assess the safety and security levels of all aspects of the civil aviation sector and identify key strategies for improving safety and security standards;
- (vi) assess the pavements, buildings, and other infrastructure at all airports, determine their adequacy, and recommend any improvements needed to handle passenger loads and aircraft types that can be anticipated to be used at these airports over the next 10 years;
- (vii) assess future operational needs for air traffic management and evaluate the communication, navigation aid, and air traffic services facilities provided at all

airports to determine their adequacy to meet these needs considering growing traffic and the anticipated introduction of new communication, navigational and surveillance technologies, and air traffic management methodologies; prepare a comprehensive plan for the development of air navigation facilities and services for the next 10 years;

- (viii) assess the electrical, mechanical, and lighting installations at all airports; determine the operational need and the adequacy, or otherwise, of existing facilities to meet these needs; and recommend any further improvements considered necessary for the next 10 years;
- (ix) assess the fire and rescue classification of each airport against operational needs; assess the adequacy of fire and rescue vehicles, equipment, supplies, and personnel at all airports to meet the operational requirements; and recommend changes or improvements necessary to meet these;
- (x) assess the relocation of Sam Nua to Vieng Xay in Houaphane Province, taking into account the safety, security, and economic costs and benefits based on the traffic forecast;
- (xi) review the actual situation and restructuring plan of Lao Aviation from operational, commercial, and safety considerations and identify areas to be developed to improve the operational and business performance of Lao Aviation and upgrade its safety standards over the next 10 years; review the introduction of the open sky policy and its impact on the Lao PDR, and recommend proper policy changes and an action plan;
- (xii) examine the programs and facilities of the Civil Aviation Training Center and training needs, and propose an improvement plan based on future training requirements, including assistance required for institutional strengthening and capacity building;
- (xiii) assess the financial and operational autonomy of LAA and recommend an action plan to retain sufficient funding for operation and maintenance (O&M), debt servicing, and reasonable capital expenditure for all airports;
- (xiv) assess the private sector involvement in the operation of airports and recommend policy and strategy to enhance the private sector participation through the removal of legal, financial, and operational impediments; and
- (xv) prepare a CAMP for a 10-year period and a policy statement for the civil aviation sector based on above findings, and conduct a seminar on the findings and recommendations to be reflected in the CAMP and the policy statement.

B. Preparation of Feasibility Studies (9 person-months of international and 7 person-months of domestic consultants)

1. Engineering and Management Aspects

3. The consultant will

- (i) review ICAO's report for improvement of operational safety and security at six airports;
- (ii) revise and prepare outline designs at each airport 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;
- (iii) prepare a detailed list of materials, facilities, equipment, and work necessary and estimate their costs, separated into foreign and local components;
- (iv) 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 project and local abilities to carry out the civil works;
- (v) determine an adequate project management organization and the inputs in terms of expertise and person-months required for preconstruction activities and construction supervision and prepare terms of reference for consulting services required for project implementation and the O&M of airport facilities and equipment acceptable to the ICAO standards after completion of the project; and
- (vi) prepare a 10-year O&M program for the six airports, identifying approaches suitable for mainstreaming local labor-based appropriate technologies to enhance employment benefits of the upgrading and maintenance of airports, provide a quantitative estimate of employment gains, and identify training needs and contract arrangements.

2. Economic Analysis

4. The consultant will (i) carry out in-depth economic analysis of the project, including calculation of the economic rate of return, taking into account economic costs and benefits; conduct relevant sensitivity analyses of identified macro, sector, and project risks (the analyses will be undertaken in accordance with the Asian Development Bank [ADB] *Guidelines for the Economic Analysis of Projects*); (ii) review the tariff structure for domestic flights and recommend an appropriate action plan for transparent and quantifiable analysis of subsidies between routes and users, in accordance with ADB's criteria for subsidies; (iii) using a detailed analysis of economic development and benchmarking of beneficiaries and benefits, conduct a distributional analysis in accordance with *ADB's Handbook for Integrating Poverty Impact into Economic Analysis of Projects*; 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: establish procedures and provide cost estimates for benefit monitoring and evaluation in terms of ADB's *Guidelines for Benefit Monitoring and Evaluation*; and (v) prepare, according to ADB standards, a project framework that clearly identifies the goals and objectives of the proposed project, required inputs, targets or benchmarks, monitoring mechanisms, and potential risks and assumptions.

3. Financial Analysis

5. In accordance with *Guidelines for the Financial Governance and Management of Investment Projects Financed by the Asian Development Bank* (2001), the consultant will

(i) carry out in-depth financial analysis of the project, including calculating of the financial rate of return and weighted average cost of capital, taking into account financial costs and benefits; conduct 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 LAA to ensure sufficient funding for O&M, debt-servicing and reasonable capital expenditure; review LAA's current financial status and update LAA's financial projections at each airport for the next 10 years based on the CAMP; (iii) review the tariff structure for domestic flights and recommend appropriate time-based action plan to reach to the full cost recovery level and to ensure financial viability of Lao Aviation; and (iv) review the latest available audited and/or unaudited financial statements of LAA and Lao Aviation to determine compliance with International Accounting Standards and any deviations from them; provide recommendations on moving toward compliance with the standards; assess LAA's and Lao Aviation's financial management capabilities and make any recommendations for improvements and institutional strengthening.

4. Poverty Analysis

6. The consultant will (i) conduct a socioeconomic and poverty profile of the affected provinces and districts based on existing documents and data, and examine the potential for development and economic growth resulting from the project; (ii) identify constraints for the poor and vulnerable groups to benefit from the project and economic growth; examine fiscal impacts of the proposed project and subsidy structure and its implications for poverty; and (iii) conduct a distributional analysis of macro and micro social and economic costs and benefits among major beneficiary groups.

5. Environmental and Social Issues

7. The consultant will

- (i) conduct an initial environmental examination (IEE) of the proposed development at each airport, taking into account the likely impacts associated with construction activities, as well as the long-term impacts during operation;
- (ii) recommend appropriate environmental mitigation and monitoring measures to address these impacts and assess the environmental benefits of the proposed activities, and any capacity strengthening measures that may be needed;
- (iii) prepare an IEE report and a summary IEE based on the *Environmental Assessment Requirements of the Asian Development Bank, ADB's Environmental Guidelines for Selected Infrastructure Projects*, and any applicable procedures or guidelines for environmental assessment as required by the Lao PDR; ensure that the costs of recommended mitigation and monitoring measures, and any capacity strengthening measures, are included in the proposed project's development costs; and prepared terms of reference for any further detailed environmental assessments, if required, in consultation with all stakeholder groups through the participatory framework;
- (iv) identify and prepare socioeconomic profiles of the affected communities in the project areas in terms of household sizes, demographic trends, income sources and levels, occupations, socioeconomic conditions, social service infrastructure, and social organizations, in accordance with (a) relevant ADB guidelines and

publications, including the *Handbook on Poverty and Social Analysis* (2001), *Handbook on Resettlement* (1998), and *Handbook for Incorporation of Social Dimensions in Projects* (1994); and (b) the requirements of the Lao PDR; the profiles will include the gender and local ethnic minority profiles; carry out any further surveys as necessary;

- (v) undertake social analysis as per the above guidelines and ADB's policies on involuntary resettlement (1995), indigenous peoples (1999), and gender and development (1998); identify the affected populations and principal beneficiaries of the project; assess the stage of development of various groups of the population and characterize the special needs and demands of each group;
- (vi) evaluate the likely impact of upgrading the airport in social terms, particularly the potential for indigenous peoples or other vulnerable groups to be significantly and adversely affected, or vulnerable to being so affected; if the social analysis identifies the need to develop an indigenous people's development plan in accordance with the ADB's Policy on Indigenous Peoples, prepare a plan that will be time-bound and will include (a) preparation of a development plan that takes into account the desires and preferred options of indigenous peoples, both women and men, to be affected by the project; (b) a study to identify potential adverse effects on indigenous peoples; (c) measures to avoid, mitigate, or compensation for these adverse effects; (d) measures to ensure and strengthen the capacity of the social, legal, and technical skills of government institutions that are responsible for indigenous peoples' affairs; (e) involvement of appropriate institutions and nongovernment organizations with expertise in matters relating to indigenous peoples; (f) consideration in the project design, of local patterns of social organization, cultural beliefs, ancestral territory, and resource use of indigenous peoples; and (g) appropriate budgetary resources for its implementation; describe the social justification of the proposed project; and
- (vii) assess the impacts of land acquisition or loss of land use on affected people (in terms of loss of homes, agricultural and other lands; or loss of access to current income-generating activities), including impacts caused by permanent or temporary acquisition; if there are land acquisition impacts, prepare an implementable resettlement plan as per *ADB's Policy on Involuntary Resettlement* and *Handbook on Resettlement: A Guide to Good Practice*, involving full stakeholder and the executing agency participation; preparation of the plan will be based on a full census and inventory of lost assets of affected people and baseline socioeconomic and perception survey of at least a 20% sample of the affected population, and a study to determine the replacement costs of all categories of losses; assess the capacity of responsible institutions to plan, manage, implement, finance and monitor effective land acquisition, compensation and resettlement, and identify capacity building measures to be included in the project.