APPENDIX TO

CHAPTER 5

Appendix 5.5.2 (1)

GUIDELINES FOR DECIDING THE OWNERSHIP AND CORPORATE STRUCTURE OF THE MAJOR AIRPORTS OF KAZAKHSTAN

1. BACKGROUND AND PURPOSE

The National Associated Airlines of Kazakhstan (Kaz Air) was created in October 1993 from Kazakhstan's component of Aeroflot which was inherited after the dissolution of the USSR in late 1991. At inception it was structured on the Aeroflot model, whereby the air carrier, air navigation service and airport components were functionally integrated but geographically decentralized to 21 separate airport locations. Most of the remaining 7 separate constituent units were located at Almaty, including the main airport of Kazakhstan and the main air carrier component.

On 1 June, 1995, the air navigation services' components of the Kaz Air units were separated and consolidated into a new joint stock company, wholly owned by the Government and called Kazaeronavigation.

Prime Ministerial decree number 533 promulgated on 30 April, 1996 stated, among other things, the Government's intention to separate the air carrier and airport components of Kaz Air. This would affect all locations except for Almaty airport which already existed as a separate Kaz Air unit.

Another Prime Ministerial decree number 1030, promulgated on 20 August, 1996, indicated that 10 airports which were economically and strategically important to Kazakhstan would each become separate and open joint stock companies. These were identified as: Akmola, Atyrau, Aktau, Uralsk, Aktyubinsk, Karaganda, Kostanay, Pavlodar, Petropavlovsk and Shimkent. The Decree stated that, at all 10 other locations except for Almaty, the airport and air carrier actvities would remain integrated.

In mid-August, 1996, the management of Almaty Airport was taken over by an international consortium led by Lufthansa Air Ground Services under a 10 year contract.

It was reported that this also provided for extensive investments in the order of USD 45-48 million to:

- refurbish the main runway;
- refurbish existing terminal buildings; and
- build new terminal buildings.

The Kazakhstan newspaper "Panorama", in an article published in Edition No. 37 on 28 September, 1996, reported that the Government had decided to privatize Aktyubinsk airport through a closed tender process.

This guideline is intended to help decision-makers of the Government of Kazakhstan formulate a coherent strategy for the future ownership and corporate form of the 10 airports mentioned in the Decree number 1030. It will also provide similar guidance regarding the remaining 10 airports if it is ever decided to change their present corporate form and ownership.

2. OBJECTIVES

To determine appropriate corporate structures and forms of ownership which will help ensure that:

- in the national interests of Kazakhstan, the 10 airports designated in Decree number 1030 continue to operate;
- operations comply with the International Civil Aviation Organization's (ICAO) Standards and Recommended Practices (SARP's) for international operations or generally accepted safety standards for domestic operations;
- the airports will be developed and operated on a sound commercial basis; and
- any subsidization of airport development and operations to meet public policy obligations will be conducted in the most efficient way possible.

3. OPTIONS

There is an extensive range of options for the ownership and organization of these airports. The most common are listed below and each will then be discussed briefly in turn. Given the Government's stated intention to transform the 10 airports into open joint stock companies, some of these options would not be relevant in whole or in part. These have been included, however, because:

- they have been widely used elsewhere;
- they raise important issues which need to be considered during any major changes of airport ownership or management;
- it is possible the government could modify its approaches in the light of further information and experience; and
- because they could also be applicable to the 10 of the 11 airports whose corporate status remains unchanged for the time-being. (As previously indicated, the future of Almaty, the eleventh airport, has already been determined)

The 10 options offered appear below:

1) All airports integrated into the Ministry of Transport and Communications.

2) Create a single state-owned enterprise (SOE), which reports to the Government through a designated ministry or agency, to develop and manage all airports.

3) Fully or partially privatize ownership all of the airports under a single corporation.

4) Fully or partially privatize the ownership of the profitable airports under a single corporation, and integrate the unprofitable airports into the MOTC, or create an SOE for their continued management and development.

5) As per 4) but privatize the ownership of the profitable airports individually.

6) As per 4) or 5) but privatize the operation of the unprofitable airports under a single corporation subsidized by the national government.

7) Corporatize the airports individually and transfer ownership to local governments which also subsidize as required.

8) As per 7) but allow the local governments to fully or partially privatize the ownership of the airports.

9) As per 1) to 9) but privatize all or selected airport operations and functions, as against ownership, through contracting out, concession agreements or management contracts.

10) Build, operate and transfer to the national or local governments all or part of any airport.

Option #1 All airports integrated into the Ministry of Transport and Communications

In many countries, airports were originally integral components of a governmental entity such as the Ministry of Defence or the Ministry of Transport.

Under such an arrangement, each airport does not exist as a separate legal entity and only limited authority is delegated to airport management. Any airport revenues are usually credited directly to the state's consolidated revenue fund. Money for airport development and operations is allocated centrally from the same source through the governmental budgeting and appropriations process.

This arrangement still exists in many countries, although it is rapidly being superseded by separately corporatized entities, such as state-owned enterprises, or by various privatization options. In Kazakhstan or any of the former republics of the USSR, this arrangement never existed. Aeroflot, a state-owned enterprise, developed and operated airports, along with air carrier, general aviation and air navigation services.

The Civil Aviation Department (CAD) of the MOTC is a relatively new and small organization (an authorized strength of 40 persons as of June 1996), primarily responsible for air safety and economic regulation, and for providing policy advice to the Government on air transportation matters. It has insufficient staff and expertise to assume the increased airport management responsibilities that would come with this arrangement.

Another significant problem which would come with this arrangement in Kazakhstan, however, is that it would create a major conflict-of-interest problem. This is because the MOTC, through the CAD, would function as both the owner/operator of its own airports, and the safety and economic regulator of all airports in Kazakhstan. Almaty Airport is owned by the National Government under the custodianship of the State Property Committee and privately operated by Lufthansa. Furthermore, the remaining 10 airports whose corporate form is not affectd by Decree number 1030 will probably be transferred to local government ownership but still be regulated by the MOTC.

A good example of this type of conflict-of-interest problem concerns the Civil Aviation Authority (CAA) of the United Kingdom which, along with the British Airports Authority and British Airways, has been a pioneer in the commercialization of the air transportation sub-system. The CAA's problem was cited in a recent World Bank study[1]:

> " ...the regulatory framework implemented in the United Kingdom has the important disadvantage in that supply/demand functions are performed by the same agency. Not only is the CAA the main supplier of ATC (Air Traffic Control) activities but it is also in a unique position to regulate its competitors. This arrangement holds potential conflict of interest implications. Moreover, the CAA also regulates both airport safety and economic activities, which could lead to inappropriate policy directives. The fact that the government is considering privatizing ATC services and restructuring the CAA indicates a partial awareness of this problem."

***Option #2** Create a single state-owned enterprise (SOE) to develop and manage all airports which reports to the Government through a designated ministry or agency*

This is one of the more common arrangements for airport ownership and organization world-wide. The state owns 100% of the equity. Capital financing is available from the government or from the commercial debt markets. Commercial debt is guaranteed by

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[1] CFS Discussion Paper Series, Number 115. "AIRPORT INFRASTRUCTURE: THE EMERGING ROLE OF THE PRIVATE SECTOR *Recent Experiences Based on 10 Case Studies*" Ellis J. Juan

the government and the interest on such debt may or may not be tax free to the debt holders. Revenues are retained by the corporation to fund development and operations and, in some cases, pay dividends to the owner (the government). The corporation may or may not pay taxes.

Sometimes, such SOE's can be a transitional arrangement whereby airports which are integrated into a governmental department are transferred to an SOE so that the management and operations can be upgraded to commercial standards. The airports can then be privatized individually or in groups. This approach was used in the United Kingdom with the British Airports Authority and is currently being used in Australia with the Federal Airports Corporation.

The management functions are the responsibility of a Board of Directors appointed by the Government. The designated minister or agency head is usually responsible for giving broad strategic policy and planning direction, and also for presenting the SOE's annual reports to the National Legislature.

The SOE is normally established with the intention of being financially self-sustaining. In this regard, it normally has the advantage of functioning as a full or partial monopoly. On the other hand, SOE's have often been subject to interference to serve narrow political interests which have adversely affected their efficiency. This can take the form of inappropriately qualified political appointees to the board of directors or requirements to provide economical unviable services. Some countries, such as Australia, have addressed this problem by ensuring that the legislation which establishes an SOE provides for safeguards against such interference.

In Kazakhstan, it appears that the State Property Committee is the governmental agency which is responsible for SOE's and would, therefore, likely assume this role for a National Airport SOE.

Option #3 Fully or partially privatize ownership of all airports under a single corporation

With this arrangement, a new corporation would be created comprising all 10 airports. All of the share capital would be fully or partially privately owned through public or

institutional equity sales. For a partial privatization, some of the equity would remain under governmental ownership.

The only example to date of a group of airports being fully privatized is the British Airports Authority (BAA). It was an SOE operating seven United Kingdom airports owned by the central government until it was fully privatized in 1986. Since privatization, the BAA has proven to be very profitable, particularly regarding the generation of non-aeronautical commercial revenues which now account for 60% of total income, one of the highest levels world-wide.

There no known examples of a partial privatization of groups of airports, although partial privatization of the airline Air Canada was used in 1988 as an interim step towards full privatization about 2 years later.

The main prerequisite for a successful privatization is that the airport(s) must be profitable on a sustainable basis. If they are currently unprofitable but potentially profitable, they can be privatized by discounting the share offering price. For these reasons, governments often take preparatory steps to make airports profitable prior to taking privatization action.

A major impediment to privatization exists when the group of airports includes those which are unlikely ever to become profitable in the foreseeable future but which the government wishes to continue to operate for public policy reasons. Under these circumstances, investors are disinclined to consider equity purchases unless a viable subsidy regime is agreed to beforehand. From the limited information available on the 10 airports of Kazakhstan, which are the subjects of this discussion paper, it is probable that all or most of them are currently unprofitable, given their current low traffic levels, high operating costs and weak commercial management. The feasibility study on 5 of these airports at Akmola, Atyrau, Aktau, Aktyubinsk and Pavlodar, conducted by the Japan International Cooperation Agency (JICA) Study Team in October, 1996, should produce a sound assessment of their current and future profitability. The issue of subsidizing unprofitable airports will be dealt with separately later in this paper.

<u>Option #4</u> Fully or partially privatize ownership of the profitable airports under a single corporation, and integrate unprofitable airports into the MOTC or create an SOE for their continued management and development

This is a combination of Options #1 and #3, or Options #2 and #3, so that most of the considerations already discussed under these headings will again apply. This option is far more likely to attract interest from private investors who would not have to be concerned about subsidizing the unprofitable airports. On the other hand, the government would receive revenue from the privatization sale and from corporate income tax paid by the private airport company, and would have the option of using such revenues for subsidizing the unprofitable airports. The government or the SOE would, however, still have the continuing responsibility for managing the unprofitable airports.

The full or partial privatization of individual airports has only occurred over the last few years or so and most of the examples have been in Europe, particularly in the United Kingdom. The East Midlands and Belfast airports in the U.K have both been fully privatized. The former was owned by a number of local governments and the latter by the national government. In the case of Belfast, a unique feature of the privatization was that it was sold to the airport's managers and employees. Liverpool airport has been partially privatized, with the local government retaining a minority ownership position. Vienna and Copenhagen offer examples of the partial privatization of major airports in Continental Europe.

<u>Option #5</u> Fully or partially privatize the ownership of profitable airports individually, and integrate unprofitable airports into the MOTC or create an SOE for their continued management and development

This is very similar to Option # 4 but has the advantage that one fully or partially privatized corporation would not monopolize all of the profitable airports. It would also probably attract more private investor interest than Option # 4 because of the lower financing requirements for single airports rather than for a group of airports.

Option #6 Fully or partially privatize the ownership of profitable airports individually, and privatize the operation of unprofitable airports subsidized by the national government.

The advantage of this arrangement over Option #5 is that it is possible to gain from the commercial efficiencies which can be achieved under private sector operation even though the airports are not profitable. The government would still own and subsidize the airports but would be relieved of managerial responsibilities. In implementing this option, the government needs to meet 3 objectives:

- The desired levels of service must be achieved in both quantitative and qualitative terms (e.g. hours of operation, handling capacity, terminal services for passengers, levels of charges, etc.).
- Full compliance with air safety standards.
- The lowest levels of subsidy payments.

The usual approach would be to enter into management contracts with private sector companies for each or all of the airports. The contractors would normally be selected through a competitive tender process, in accordance with contract specifications based on the 3 aforementioned objectives to obtain the optimal combination of service and price, and always full compliance with safety standards. A fuller explanation of privatizing airport operations as against ownership will be given later under Option #9.

Option #7 Corporatize airports individually and transfer ownership to local governments which also subsidize as required.

This is similar to Option #2, except that instead of having a single enterprise owned by the National Government, each airport would be operated by a single local government owned enterprise (LGOE). This option has the advantage that the local ownership would tend to encourage the development and operation of the airport to be more responsive to local needs.

Option #8 Corporatize the airports individually, transfer ownership to local governments which have the right to fully or partially privatize ownership

This is a derivation of Option #7. If the airport is currently or potentially profitable, then the probability of attracting significant private sector interest is high. If the airport is unprofitable and is likely to remain so for the foreseeable future, then the local government has to decide whether to:

- close the airport altogether;
- own, operate and subsidize the airport, as per Option #7; or
- continue to own the airport but privatize its operation as per Option #6, and make subsidy payments to the private operator.

Option #9 Privatize all or selected airport operations and functions, as against ownership, through contracting out, concession agreements or management contracts.

This is the longest-established privatization option for airports although, until the last 15 years or so, it was primarily confined to concession agreements with private-sector operators for groundside terminal services such as duty-free stores, restaurants, car-parks, etc. It has since become more common to contract out airport operational services such as security, rescue and firefighting (RFF) and air traffic control.

Management contracts provide for all or a major part of any airport's operations to be contracted out to a single source, which will then provide a range of services directly or sub-contract these to various specialist private sector organizations. The Government of Kazakhstan recently entered into a 10 year management agreement with Lufthansa for Almaty Airport.

In all of these cases, the key feature is that ownership, whether it is private or governmental, remains unchanged but operation(s) or function(s) are contracted to another private entity.

<u>Option #10</u> Build, Operate and Transfer all or part of an airport

This is a form of management contract but the contractor also undertakes to build new or develop existing airport facilities, operate these over an extended period, whereupon these are transferred to the owner (usually the government). Such BOT agreements have become increasingly common in recent years, particularly in developing countries. According to a recent World Bank Study[2]:

> "the use of this option maintains government ownership of the facilities and thereby limits political conflict. However, lack of ownership of the facilities under construction could become a financial obstacle to the private sector attempts to raise capital funds for the project. Financial institutions could assign a higher than normal contractual and political risk, thus increasing the project's capital costs. This is of particular relevance in developing countries whose governments lack experience of such transactions."

A recent example of an airport BOT agreement in a developing country is a 20 year agreement between the Government of Cambodia and a Franco-Malaysian consortium to develop and operate Pochentong Airport serving the capital of Phnom Penh. All airport operations, except for air navigation services, are contracted out to Aeroports de Paris.

Although 10 options have been presented, more are available. These include arrangements whereby ownership is privatized over defined periods of time through long term leasing agreements, rather than a permanent transfer of ownership. In practical terms, however, such arrangements tend to be very similar to those for permanent sale and BOT agreements and have, therefore, not been separately included in this discussion paper.

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[2] CFS Discussion Paper Series, Number 115. "AIRPORT INFRASTRUCTURE: THE EMERGING ROLE OF THE PRIVATE SECTOR *Recent Experiences Based on 10 Case Studies*" Ellis J. Juan

4. OPTION EVALUATION CRITERIA

In trying to assist the Government of Kazakhstan to reach the best choice of option or options for the 10 airports under consideration, it is necessary to evaluate each of the 10 options in turn against a set of criteria. Given the stated objectives in Section 2, the following criteria are offered and then briefly explained in turn:

A. Access to Commercial Debt Markets

B. Access to Equity Markets

Airports can either be financed from:

- internal governmental sources;
- the commercial debt markets; or
- the equity markets.

If the airport is an integral part of a governmental department or agency, only the first option is available. If the airport is part of an SOE or LGOE where 100% of the equity is governmentally owned, financing is only available from the debt markets, although some internal governmental funding may be provided to subsidize public policy obligations. In the case of full or partial privatization of ownership, access is available to both the commercial debt and equity markets. Again internal governmental funding may be available to subsidize public policy obligations.

C. Attractiveness to private investors

The more attractive an option is to private investors then the greater availability of private financing. The option would be most attractive if:

- the airport or group of airports are assessed as profitable over the foreseeable future;
- except for safety regulation, external constraints on airport management and operations are minimal; and

- there is no requirement to own and operate unprofitable airports which need to be subsidized from the revenues of profitable airports owned by the same company.

D. Opportunity to enhance commercial revenues

Airports have two primary sources of revenues:

- Aeronautical revenues which are derived from the provision of capacity to aircraft, passengers and freight. Examples include landing charges, aircraft parking charges, passenger facility charges, etc.
- Commercial revenues which are derived from groundside commercial services not related to the airport's primary operational functions.

There is now much evidence to show that the levels of commercial revenues increases significantly after privatization, with many such airports deriving more than 50% or their revenues from commercial sources. In the case of the BAA it is 60%. These increased revenues can be used to subsidize airside operations, provide airport development funding, provide additional pay and benefits to employees, and pay dividends to shareholders.

E. Public concern over privatization

Public concern over airport privatization is still quite common and the levels of concern tends to increase if foreign ownership is involved. Even though the inefficiencies often associated with governmental ownership are widely acknowledged, many still feel that their interests are best served by governmental organizations rather than private sector organizations more focused on making profits. Although evidence suggests that these concerns are generally misplaced and tend to lessen as privatization of public infrastructure becomes more widespread, they have to be acknowledged and taken into account by governmental decision-makers.

F. Meeting public policy obligations

Governments are often required to provide services which are considered important but which can be very unprofitable. This is particularly true in the transportation sector.

Airports can provide transportation to remote communities, facilitating not only general access but also other public services such as those for health and safety. There is generally more flexibility regarding the establishment and operation of such airports in the public rather than the private sector.

G. Immunity from political interference

While governmentally owned airports are often well placed to meet public policy obligations they are also more susceptible to interference to serve narrow political interests which tends to compromise their overall efficiency. This can take the form of the appointment of unqualified persons to senior positions as a reward for their political activities, or requirements to provide services to serve political rather than commercial needs. Legislative mechanisms are available to deal with this sort of problem. These can take the form of legislated qualifications and selection processes for directors or senior personnel, or requirements that any political directions must be made public and separately funded. There has been insufficient experience to date to determine how effective such mechanisms have been.

H. Operating efficiency

The operating efficiency of any enterprise is the ratio of outputs, in terms of quantity and quality, versus costs. For an airport, the primary outputs are capacities for aircraft, passengers and cargo; the secondary outputs are commercial services, such as retail outlets and industrial parks. Private sector organizations generally enjoy a higher level of operating efficiency than public sector organizations. Because they need to make a profit to survive, they tend to be more focused. They are also less encumbered than their public sector counterparts with bureaucratic managerial styles, and unclear or changing mandates. One of the key features of almost every privatization is an early and comprehensive program to cut costs, and to redefine the market and products.

J. Burden to government in terms of financing and management

If airports are integrated into governmental departments or agencies, then the government, through those organizations, bears the full burden of financing and

management. That burden still exists but to a lesser degree with SOE's. The burden is effectively reduced to zero in the case of full privatization of ownership. Regardless of ownership, the government must always retain responsibility for regulatory activities.

5. EVALUATION PROCESS

Once options and criteria for evaluating options have been identified, the actual evaluation process can take place. An evaluation grid chart plus information as how to assign point ratings for each option/criteria combination appears as Attachment I. A suggested approach for conducting an evaluation follows:

1) Select senior representatives from those organizations which would be most influential or otherwise have an interest in the future ownership and management of the airports. A suggested list is:

    - the Ministry of Transport and Communications;
    - the Ministry of Finance;
    - the State Property Committee;
    - the State Privatization Committee;
    - the State Antitrust Committee; and
    - representation from one of the Oblasts.

2) The representatives would gather together for a joint evaluation process under the guidance of a Facilitator.

3) It is extremely important that the Facilitator's role is one of helping the participants to conduct the evaluations while in no way trying to influence the evaluation ratings.

4) The process first entails each of the participants gaining a thorough understanding of each of the options and each of the criteria, and the method of assigning point ratings. This is the responsibility of the Facilitator who would explain each option and criteria in turn, clarify any misunderstandings and, if necessary, even allow some time for a debate on each between the participants.

5) Each participant then assigns their own point ratings for each option against each criteria and the results are totaled individually on their own grid sheet. The individual participant's results are then totaled to achieve collective point rankings which determine the final results.

6) Given such a large number of options, it may be appropriate to identify the top three or four options and repeat the process. If this is to be done, it should be decided upon by participants at the outset. For such a second round, it may also be appropriate to modify the criteria, provided that this is done through a facilitated and unanimous decision-making process.

7) The outcome will not only identify the preferred options but it will also serve to quickly educate all of participants on the key issues relating to airport ownership, management and operations. It will also allow the group or selected representatives of the group to recommended a clear strategy to the Government regarding the future disposition of the airports.

6. PRIVATIZATION PROGRAM

Program Components and Expertise Required

In keeping with global trends regarding airport ownership, management and operations, most of the suggested options have constituent components involving some form of privatization of ownership or services. A recent World Bank Study[3] stated that there was no evidence that governments were following a similar pattern when privatizing their airport operations, or that a common approach to strategic decisions was shared among them. Based on recent privatization experiences, however, the World Bank has developed a summary of the key components of an airport privatization program and the

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[3] CFS Discussion Paper Series, Number 115. "AIRPORT INFRASTRUCTURE: THE EMERGING ROLE OF THE PRIVATE SECTOR *Recent Experiences Based on 10 Case Studies*" Ellis J. Juan

type of expertise required for successful implementation. This summary appears as Attachment II.

Addressing Issues of Major Concern

Privatization can be an emotive issue, particularly regarding something like airports which tend to have a high safety profile, and are widely regarded as important national or regional assets. A proposed airport privatization can cause considerable public debate between prominent advocates and opponents. Opposition to airport privatization tends to center around three key issues: safety, loss of public services and the prospect of job losses. It is vital, therefore, that any government contemplating an airport privatization program deals with these issues in a clear and proactive manner. This requires a sound strategies and associated public relations campaigns. In terms of the key issues of safety and job losses, the following strategies are proposed:

1) ***Safety*** In creating a more commercially efficient airport system for the Republic of Kazakhstan, the National Government will ensure that airport safety standards will in no way be compromised. All airports, whether privately or publicly owned, will operate within the same safety regime controlled by the National Government which recognizes that improved efficiency and safety are interdependent and not mutually exclusive.

2) ***Public Services*** The National Government recognizes its obligations to provide a range of public services to enhance the health, welfare and security of the citizens of Kazakhstan, which usually cannot be provided on a commercial basis. It also recognizes that airports can play an important part in delivering such services. As part of any airport privatization program, therefore, the Government will carefully examine, in consultation with concerned citizens and interest groups, each public service supported by the airport to determine:

    - whether the service should be continued, modified, or phased out;

- measures to improve the efficiency of any services which will continue; and
- transitional measures needed to alleviate any hardships or inconveniences attributable to the phasing out of a service.

The Government will also fund any continuing public services from its general revenue fund, rather than through subsidies required from the airport's owners.

3) *Job Losses* The creation of a more commercially efficient airport system will yield significant long term economic benefits for the Republic of Kazakhstan. It will require, however, an ongoing effort to improve efficiency in service delivery. This may involve some staff reductions. The Government undertakes to fully consult with affected employees to find ways of mitigating the adverse impact of such reductions. Options to be considered include: phased staff reductions; early retirement incentive programs; severance payments; and retraining and reassignment programs. In developing its options, the Government will to take a balanced approach by being sensitive to the needs and concerns of its employees while controlling any financial burdens on airport users or taxpayers.

EVALUATION OF OPTIONS FOR MANAGING THE STRATEGICALLY AND ECONOMICALLY IMPORTANT AIRPORTS OF KAZAKHSTAN

	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8	Option 9	Option 10
Criteria A										
Criteria B										
Criteria C										
Criteria D										
Criteria E										
Criteria F										
Criteria G										
Criteria H										
Criteria J										
TOTAL										

Options

1) All airports integrated into the Ministry of Transport and Communications.
2) Create a single state-owned enterprise (SOE), which reports to the Government through a designated ministry or agency, to develop and manage all airports.
3) Fully or partially privatize ownership of all airports under a single corporation.
4) Fully or partially privatize the ownership of the profitable airports under a single corporation, and integrate the unprofitable airports into the MOTC, or create an SOE for their continued management and development.
5) As per 4) but privatize the ownership of the profitable airports individually.
6) As per 4) or 5) but privatize the operation of the unprofitable airports under a single corporation subsidized by the national government.
7) Corporatize the airports individually and transfer ownership to local governments which also subsidize as required.
8) As per 7) but allow the local governments to fully or partially privatize the ownership of the airports.
9) As per 1) to 9) but privatize all or selected airport operations and functions, as against ownership, through contracting out, concession agreements or management contracts.
10) Build, operate and transfer to the national or local governments all or part of any airport.

Criteria

A. Access to commercial debt markets
B. Access to equity markets
C. Attractiveness to private investors
D. Opportunity to enhance commercial revenues
E. Least public concern over privatization
F. Meeting public policy obligations
G. Immunity from political interference
H. Operating efficiency
J. Least burden to government in terms of financing and management

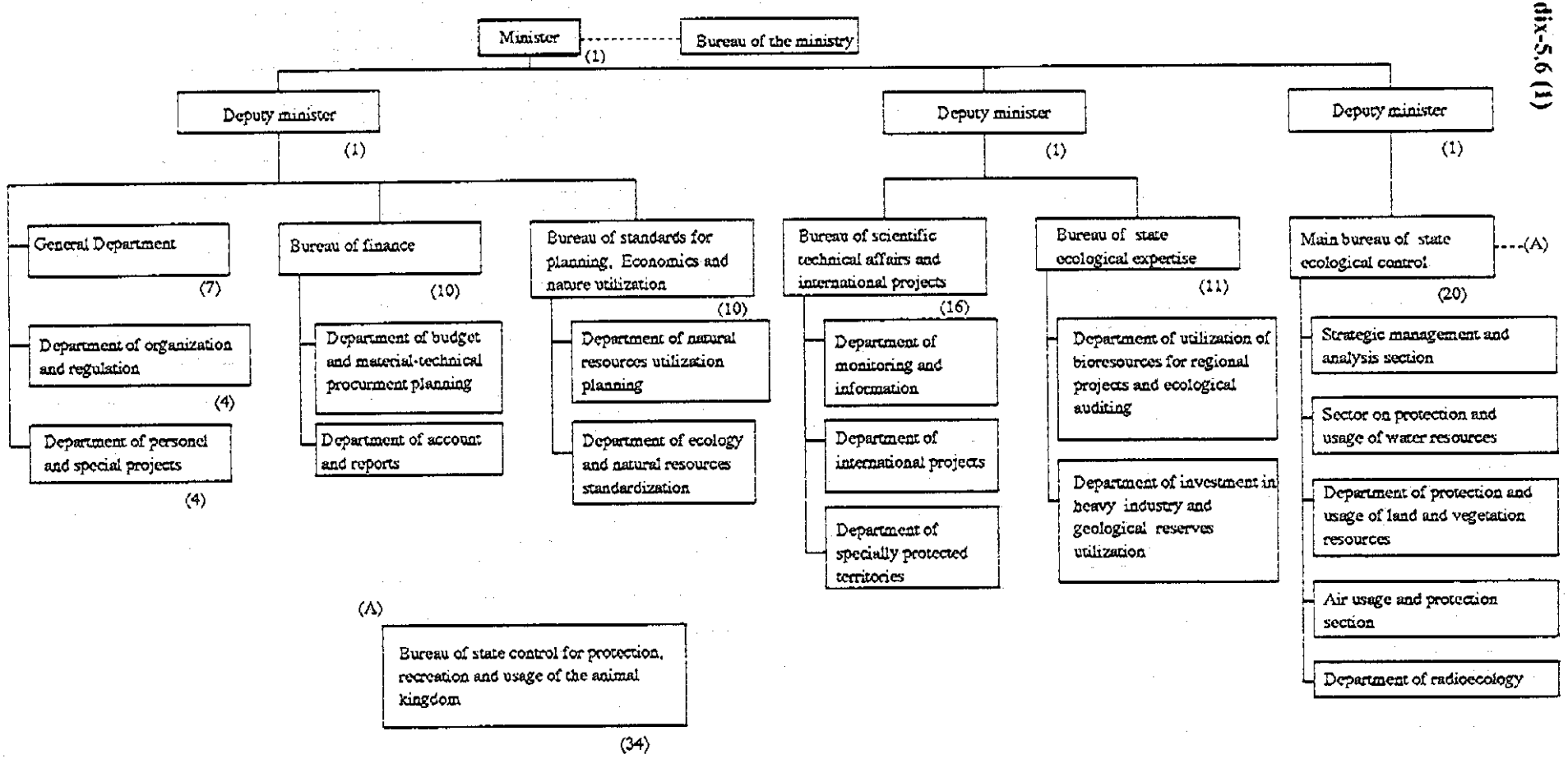
Evaluation guide

I. Select and understand an option.
II. Assess the selected option in terms of each of the criteria A to J.
III. A point rating of 0 to 5 can be assigned for each criteria.
IV. A point rating of 5 means that the option complies fully with that criteria.
V. A point rating of 0 means that the option does not comply with the criteria at all.
VI. Point ratings of 1 to 4 means various degrees of partial compliance.

AIRPORT PRIVATIZATION PROGRAM[1]

Key Components	*Types of Expertise*
1. Master Plan. An analysis of the national airport system including: 1) financial modeling of the system (i.e., air navigation services, profitable airports, unprofitable airports, civil aviation authority, etc.); 2) traffic forecasts; and 3) investment needs.	Specialized Consulting Firm in the field of airport planning.
2. Restructuring Study. Separation of air navigation activities from airport activities (if necessary). Definition of airport activities to be privatized (i.e., airside, landside, or complete operation). Packaging of airports to be privatized (i.e., profitable airports, unprofitable airports, greenfield projects, etc.). Definition of the cross-subsidies mechanism. Future cash-flow of the system under the proposed privatization arrangement.	Specialized Consulting Firm in the field of sector strategic analysis and planning.
3. Analysis of the Institutional and Regulatory Framework. Diagnosis of the institutional capabilities of government agencies (i.e., civil aviation authority, regulatory agencies, etc.). Adaptation of existing regulations to private sector participation in the provision of airport services. Definition of pricing techniques and formulas for sound economic regulation.	Specialized Consulting Firm in the field of regulatory and institutional economics.
4. Design and Implementation of the Privatization Transaction. Privatization option to be used (i.e., BOT, sale of assets, multiple service concessions, management contracts, etc.). Financial Design of the transaction (i.e., airport revenues, pricing formula, concession fees, level of investments, debt capacity, etc.). Bidding process (i.e., sales memorandum, bidding conditions, marketing process, etc.). Completion of the sale (i.e., sale transfer of assets, signing of the concession contract, etc.)	Financial Adviser. Investment Bank with experience in infrastructure transactions.

[1] CFS Discussion Paper Series, Number 115. "AIRPORT INFRASTRUCTURE: THE EMERGING ROLE OF THE PRIVATE SECTOR *Recent Experiences Based on 10 Case Studies*" Ellis J. Juan



Notice: 1. Total staffing level 120 persons
Section staff levels appear in brackets

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Central Body Organizational Structure of Ministry of Ecology and Bioresources

Appendix-5.6 (2) Screening

1) Airport: Akmola

No.	Environmental Item	Description	Evaluation	Remarks
		Social Environment		
1	Resettlement	Resettlement due to land occupancy (transfer of rights of residence / land ownership)	[Y][N][?]	Existing airport to be used.
2	Economic Activities	Loss of bases of economic activities, such as land, and change of economic structure	[Y][N][?]	//
3	Traffic and Public Facilities	Impacts on schools, hospitals and present traffic conditions, such as the increase of traffic congestion and accidents	[Y][N][?]	//
4	Split of Communities	Community split due to interruption of area traffic	[Y][N][?]	//
5	Cultural Property	Damage to or loss of the value of churches, temples, shrines, archaeological remains or other cultural assets	[Y][N][?]	None
6	Water Rights and Rights of Common	Obstruction of fishing rights, water rights, rights of common	[Y][N][?]	Existing airport to be used.
7	Public Health Condition	Deterioration of public health and sanitary conditions due to generation of garbage and the increase of vermin	[Y][N][?]	//
8	Waste	Generation of construction and demolition waste, debris and logs	[Y][N][?]	Not much waste generated..
9	Hazards (Risk)	Increase in risk of landslides, cave-ins and accidents	[Y][N][?]	The land use plan in the vicinity of airport in 2005 is unknown.
		Natural Environment		
10	Topography and Geology	Changes of valuable topography and geology due to excavation or filling work	[Y][N][?]	None
11	Soil Erosion	Topsoil erosion by rainfall after reclamation and vegetation removal	[Y][N][?]	//
12	Groundwater	Change of distribution of groundwater by large-scale excavation	[Y][N][?]	//
13	Hydrological Situation	Changes of river discharge and riverbed condition due to landfill and drainage inflow	[Y][N][?]	//
14	Coastal Zone	Coastal erosion and sedimentation due to landfill or change in marine condition	[Y][N][?]	//
15	Fauna and Flora	Obstruction of breeding and extinction of species due to change of habitats condition	[Y][N][?]	There are staging points for migratory birds.
16	Meteorology	Changes of temperature, precipitation, wind, etc. due to large -scale land reclamation and building construction	[Y][N][?]	None
17	Landscape	Change of topography and vegetation due to reclamation. Deterioration of aesthetic harmony by structures	[Y][N][?]	//
		Pollution		
18	Air Pollution	Pollution caused by exhaust gas or toxic gas from vehicles and factories	[Y][N][?]	The land use plan in the vicinity of airport in 2005 is unknown.
19	Water Pollution	Pollution by inflow of silt, sand and effluent into rivers and groundwater	[Y][N][?]	The surface water treatment system is unknown.
20	Soil Contamination	Contamination of soil by dust and chemicals, such as herbicides	[Y][N][?]	None
21	Noise and Vibration	Noise and vibration generated by vehicles	[Y][N][?]	The land use plan in the vicinity of airport in 2005 is unknown.
22	Land Subsidence	Deformation of land and land subsidence due to the lowering of groundwater table	[Y][N][?]	The existence of soft ground is unknown.
23	Offensive Odor	Generation of exhaust gas and offensive odor by facility construction and operation	[Y][N][?]	None
Overall Evaluation: Is either IEE or EIA necessary for the project implementation? [Y]				

Note: "Y": Some impact is expected.
"N": No impact is expected. IEE / EIA is not necessary.
"?": Extent of impact is unknown (Examination is needed. Impact may become clear as study progresses.)

2) Airport: Aktyubinsk

No.	Environmental Item	Description	Evaluation	Remarks
		Social Environment		
1	Resettlement	Resettlement due to land occupancy (transfer of rights of residence / land ownership)	[Y][N][?]	Existing airport to be used.
2	Economic Activities	Loss of bases of economic activities, such as land, and change of economic structure	[Y][N][?]	//
3	Traffic and Public Facilities	Impacts on schools, hospitals and present traffic conditions, such as the increase of traffic congestion and accidents	[Y][N][?]	//
4	Split of Communities	Community split due to interruption of area traffic	[Y][N][?]	//
5	Cultural Property	Damage to or loss of the value of churches, temples, shrines, archaeological remains or other cultural assets	[Y][N][?]	None
6	Water Rights and Rights of Common	Obstruction of fishing rights, water rights, rights of common	[Y][N][?]	Existing airport to be used.
7	Public Health Condition	Deterioration of public health and sanitary conditions due to generation of garbage and the increase of vermin	[Y][N][?]	//
8	Waste	Generation of construction and demolition waste, debris and logs	[Y][N][?]	Not much waste generated.
9	Hazards (Risk)	Increase in risk of landslides, cave-ins and accidents	[Y][N][?]	Aircraft accident
		Natural Environment		
10	Topography and Geology	Changes of valuable topography and geology due to excavation or filling work	[Y][N][?]	None
11	Soil Erosion	Topsoil erosion by rainfall after reclamation and vegetation removal	[Y][N][?]	//
12	Groundwater	Change of distribution of groundwater by large-scale excavation	[Y][N][?]	The pumping volume is unknown.
13	Hydrological Situation	Changes of river discharge and riverbed condition due to landfill and drainage inflow	[Y][N][?]	None
14	Coastal Zone	Coastal erosion and sedimentation due to landfill or change in marine condition	[Y][N][?]	//
15	Fauna and Flora	Obstruction of breeding and extinction of species due to change of habitats condition	[Y][N][?]	//
16	Meteorology	Changes of temperature, precipitation, wind, etc. due to large -scale land reclamation and building construction	[Y][N][?]	//
17	Landscape	Change of topography and vegetation due to reclamation. Deterioration of aesthetic harmony by structures	[Y][N][?]	//
		Pollution		
18	Air Pollution	Pollution caused by exhaust gas or toxic gas from vehicles and factories	[Y][N][?]	The number of flights in 2005 is unknown.
19	Water Pollution	Pollution by inflow of silt, sand and effluent into rivers and groundwater	[Y][N][?]	None
20	Soil Contamination	Contamination of soil by dust and chemicals, such as herbicides	[Y][N][?]	//
21	Noise and Vibration	Noise and vibration generated by vehicles	[Y][N][?]	There are residents in the area who will be affected.
22	Land Subsidence	Deformation of land and land subsidence due to the lowering of groundwater table	[Y][N][?]	None
23	Offensive Odor	Generation of exhaust gas and offensive odor by facility construction and operation	[Y][N][?]	//
Overall Evaluation: Is either IEE or EIA necessary for the project implementation?			[Y]	

Note: "Y": Some impact is expected.
"N": No impact is expected. IEE / EIA is not necessary.
"?": Extent of impact is unknown (Examination is needed. Impact may become clear as study progresses.)

3) Airport: Almaty

No.	Environmental Item	Description	Evaluation	Remarks
		Social Environment		
1	Resettlement	Resettlement due to land occupancy (transfer of rights of residence / land ownership)	[Y][N][?]	Existing airport to be used.
2	Economic Activities	Loss of bases of economic activities, such as land, and change of economic structure	[Y][N][?]	//
3	Traffic and Public Facilities	Impacts on schools, hospitals and present traffic conditions, such as the increase of traffic congestion and accidents	[Y][N][?]	The increase of traffic is unknown.
4	Split of Communities	Community split due to interruption of area traffic	[Y][N][?]	Existing airport to be used.
5	Cultural Property	Damage to or loss of the value of churches, temples, shrines, archaeological remains or other cultural assets	[Y][N][?]	None
6	Water Rights and Rights of Common	Obstruction of fishing rights, water rights, rights of common	[Y][N][?]	Existing airport to be used.
7	Public Health Condition	Deterioration of public health and sanitary conditions due to generation of garbage and the increase of vermin	[Y][N][?]	//
8	Waste	Generation of construction and demolition waste, debris and logs	[Y][N][?]	Not much waste generated.
9	Hazards (Risk)	Increase in risk of landslides, cave-ins and accidents	[Y][N][?]	Aircraft accident
		Natural Environment		
10	Topography and Geology	Changes of valuable topography and geology due to excavation or filling work	[Y][N][?]	None
11	Soil Erosion	Topsoil erosion by rainfall after reclamation and vegetation removal	[Y][N][?]	//
12	Groundwater	Change of distribution of groundwater by large-scale excavation	[Y][N][?]	//
13	Hydrological Situation	Changes of river discharge and riverbed condition due to landfill and drainage inflow	[Y][N][?]	//
14	Coastal Zone	Coastal erosion and sedimentation due to landfill or change in marine condition	[Y][N][?]	//
15	Fauna and Flora	Obstruction of breeding and extinction of species due to change of habitats condition	[Y][N][?]	//
16	Meteorology	Changes of temperature, precipitation, wind, etc. due to large -scale land reclamation and building construction	[Y][N][?]	//
17	Landscape	Change of topography and vegetation due to reclamation. Deterioration of aesthetic harmony by structures	[Y][N][?]	//
		Pollution		
18	Air Pollution	Pollution caused by exhaust gas or toxic gas from vehicles and factories	[Y][N][?]	There are many residents in the vicinity of the airport.
19	Water Pollution	Pollution by inflow of silt, sand and effluent into rivers and groundwater	[Y][N][?]	The surface water treatment system is unknown.
20	Soil Contamination	Contamination of soil by dust and chemicals, such as herbicides	[Y][N][?]	None
21	Noise and Vibration	Noise and vibration generated by vehicles	[Y][N][?]	There are many residents in the vicinity of the airport.
22	Land Subsidence	Deformation of land and land subsidence due to the lowering of groundwater table	[Y][N][?]	None
23	Offensive Odor	Generation of exhaust gas and offensive odor by facility construction and operation	[Y][N][?]	//
Overall Evaluation: Is either IEE or EIA necessary for the project implementation?			[Y]	

Note: "Y": Some impact is expected.
"N": No impact is expected. IEE / EIA is not necessary.
"?": Extent of impact is unknown (Examination is needed. Impact may become clear as study progresses.)

4) Airport: Shimkent

No.	Environmental Item	Description	Evaluation	Remarks
		Social Environment		
1	Resettlement	Resettlement due to land occupancy (transfer of rights of residence / land ownership)	[Y][N][?]	Existing airport to be used.
2	Economic Activities	Loss of bases of economic activities, such as land, and change of economic structure	[Y][N][?]	//
3	Traffic and Public Facilities	Impacts on schools, hospitals and present traffic conditions, such as the increase of traffic congestion and accidents	[Y][N][?]	//
4	Split of Communities	Community split due to interruption of area traffic	[Y][N][?]	Existing airport to be used.
5	Cultural Property	Damage to or loss of the value of churches, temples, shrines, archaeological remains or other cultural assets	[Y][N][?]	//
6	Water Rights and Rights of Common	Obstruction of fishing rights, water rights, rights of common	[Y][N][?]	//
7	Public Health Condition	Deterioration of public health and sanitary conditions due to generation of garbage and the increase of vermin	[Y][N][?]	//
8	Waste	Generation of construction and demolition waste, debris and logs	[Y][N][?]	Not much waste generated.
9	Hazards (Risk)	Increase in risk of landslides, cave-ins and accidents	[Y][N][?]	Aircraft accident
	Natural Environment			
10	Topography and Geology	Changes of valuable topography and geology due to excavation or filling work	[Y][N][?]	Existing airport to be used.
11	Soil Erosion	Topsoil erosion by rainfall after reclamation and vegetation removal	[Y][N][?]	//
12	Groundwater	Change of distribution of groundwater by large-scale excavation	[Y][N][?]	The plans for groundwater usage are unknown.
13	Hydrological Situation	Changes of river discharge and riverbed condition due to landfill and drainage inflow	[Y][N][?]	Existing airport to be used.
14	Coastal Zone	Coastal erosion and sedimentation due to landfill or change in marine condition	[Y][N][?]	None
15	Fauna and Flora	Obstruction of breeding and extinction of species due to change of habitats condition	[Y][N][?]	The state of fauna and flora is unknown.
16	Meteorology	Changes of temperature, precipitation, wind, etc. due to large -scale land reclamation and building construction	[Y][N][?]	None
17	Landscape	Change of topography and vegetation due to reclamation. Deterioration of aesthetic harmony by structures	[Y][N][?]	Existing airport to be used.
	Pollution			
18	Air Pollution	Pollution caused by exhaust gas or toxic gas from vehicles and factories	[Y][N][?]	The number of flights in 2005 is unknown.
19	Water Pollution	Pollution by inflow of silt, sand and effluent into rivers and groundwater	[Y][N][?]	The capability of the water treatment plant is unknown.
20	Soil Contamination	Contamination of soil by dust and chemicals, such as herbicides	[Y][N][?]	The usage of anti-freeze chemicals is unknown.
21	Noise and Vibration	Noise and vibration generated by vehicles	[Y][N][?]	The number of flights in 2005 is unknown.
22	Land Subsidence	Deformation of land and land subsidence due to the lowering of groundwater table	[Y][N][?]	The existence of soft ground is unknown.
23	Offensive Odor	Generation of exhaust gas and offensive odor by facility construction and operation	[Y][N][?]	None
Overall Evaluation: Is either IEE or EIA necessary for the project implementation? [Y]				

Note: "Y": Some impact is expected.
"N": No impact is expected. IEE / EIA is not necessary.
"?": Extent of impact is unknown (Examination is needed. Impact may become clear as study progresses.)

5) Airport: Atyrau

No.	Environmental Item	Description	Evaluation	Remarks
		Social Environment		
1	Resettlement	Resettlement due to land occupancy (transfer of rights of residence / land ownership)	[Y][N][?]	Existing airport to be used.
2	Economic Activities	Loss of bases of economic activities, such as land, and change of economic structure	[Y][N][?]	//
3	Traffic and Public Facilities	Impacts on schools, hospitals and present traffic conditions, such as the increase of traffic congestion and accidents	[Y][N][?]	//
4	Split of Communities	Community split due to interruption of area traffic	[Y][N][?]	//
5	Cultural Property	Damage to or loss of the value of churches, temples, shrines, archaeological remains or other cultural assets	[Y][N][?]	None
6	Water Rights and Rights of Common	Obstruction of fishing rights, water rights, rights of common	[Y][N][?]	Existing airport to be used.
7	Public Health Condition	Deterioration of public health and sanitary conditions due to generation of garbage and the increase of vermin	[Y][N][?]	//
8	Waste	Generation of construction and demolition waste, debris and logs	[Y][N][?]	Not much waste generated.
9	Hazards (Risk)	Increase in risk of landslides, cave-ins and accidents	[Y][N][?]	The countermeasures for the rising of the Caspian Sea and aircraft accidents are unknown.
		Natural Environment		
10	Topography and Geology	Changes of valuable topography and geology due to excavation or filling work	[Y][N][?]	None
11	Soil Erosion	Topsoil erosion by rainfall after reclamation and vegetation removal	[Y][N][?]	//
12	Groundwater	Change of distribution of groundwater by large-scale excavation	[Y][N][?]	//
13	Hydrological Situation	Changes of river discharge and riverbed condition due to landfill and drainage inflow	[Y][N][?]	//
14	Coastal Zone	Coastal erosion and sedimentation due to landfill or change in marine condition	[Y][N][?]	//
15	Fauna and Flora	Obstruction of breeding and extinction of species due to change of habitats condition	[Y][N][?]	//
16	Meteorology	Changes of temperature, precipitation, wind, etc. due to large -scale land reclamation and building construction	[Y][N][?]	//
17	Landscape	Change of topography and vegetation due to reclamation. Deterioration of aesthetic harmony by structures	[Y][N][?]	//
		Pollution		
18	Air Pollution	Pollution caused by exhaust gas or toxic gas from vehicles and factories	[Y][N][?]	There are many residents in the vicinity of the airport.
19	Water Pollution	Pollution by inflow of silt, sand and effluent into rivers and groundwater	[Y][N][?]	The capability of the water treatment plant is unknown.
20	Soil Contamination	Contamination of soil by dust and chemicals, such as herbicides	[Y][N][?]	None
21	Noise and Vibration	Noise and vibration generated by vehicles	[Y][N][?]	There are many residents in the vicinity of the airport.
22	Land Subsidence	Deformation of land and land subsidence due to the lowering of groundwater table	[Y][N][?]	None
23	Offensive Odor	Generation of exhaust gas and offensive odor by facility construction and operation	[Y][N][?]	//
Overall Evaluation: Is either IEE or EIA necessary for the project implementation?			[Y]	

Note: "Y": Some impact is expected.
"N": No impact is expected. IEE / EIA is not necessary.
"?": Extent of impact is unknown (Examination is needed. Impact may become clear as study progresses.)

6) Airport: Kraganda

No.	Environmental Item	Description	Evaluation	Remarks
		Social Environment		
1	Resettlement	Resettlement due to land occupancy (transfer of rights of residence / land ownership)	[Y][N][?]	Existing airport to be used.
2	Economic Activities	Loss of bases of economic activities, such as land, and change of economic structure	[Y][N][?]	//
3	Traffic and Public Facilities	Impacts on schools, hospitals and present traffic conditions, such as the increase of traffic congestion and accidents	[Y][N][?]	//
4	Split of Communities	Community split due to interruption of area traffic	[Y][N][?]	//
5	Cultural Property	Damage to or loss of the value of churches, temples, shrines, archaeological remains or other cultural assets	[Y][N][?]	None
6	Water Rights and Rights of Common	Obstruction of fishing rights, water rights, rights of common	[Y][N][?]	Existing airport to be used.
7	Public Health Condition	Deterioration of public health and sanitary conditions due to generation of garbage and the increase of vermin	[Y][N][?]	//
8	Waste	Generation of construction and demolition waste, debris and logs	[Y][N][?]	Not much waste generated.
9	Hazards (Risk)	Increase in risk of landslides, cave-ins and accidents	[Y][N][?]	None
		Natural Environment		
10	Topography and Geology	Changes of valuable topography and geology due to excavation or filling work	[Y][N][?]	None
11	Soil Erosion	Topsoil erosion by rainfall after reclamation and vegetation removal	[Y][N][?]	//
12	Groundwater	Change of distribution of groundwater by large-scale excavation	[Y][N][?]	The pumping volume is unknown.
13	Hydrological Situation	Changes of river discharge and riverbed condition due to landfill and drainage inflow	[Y][N][?]	None
14	Coastal Zone	Coastal erosion and sedimentation due to landfill or change in marine condition	[Y][N][?]	//
15	Fauna and Flora	Obstruction of breeding and extinction of species due to change of habitats condition	[Y][N][?]	The state of migratory birds is unknown.
16	Meteorology	Changes of temperature, precipitation, wind, etc. due to large -scale land reclamation and building construction	[Y][N][?]	None
17	Landscape	Change of topography and vegetation due to reclamation. Deterioration of aesthetic harmony by structures	[Y][N][?]	//
		Pollution		
18	Air Pollution	Pollution caused by exhaust gas or toxic gas from vehicles and factories	[Y][N][?]	No people live in the area.
19	Water Pollution	Pollution by inflow of silt, sand and effluent into rivers and groundwater	[Y][N][?]	None
20	Soil Contamination	Contamination of soil by dust and chemicals, such as herbicides	[Y][N][?]	//
21	Noise and Vibration	Noise and vibration generated by vehicles	[Y][N][?]	The number of flights in 2005 is unknown.
22	Land Subsidence	Deformation of land and land subsidence due to the lowering of groundwater table	[Y][N][?]	None
23	Offensive Odor	Generation of exhaust gas and offensive odor by facility construction and operation	[Y][N][?]	//
Overall Evaluation: Is either IEE or EIA necessary for the project implementation?			[Y]	

Note: "Y": Some impact is expected.
"N": No impact is expected. IEE / EIA is not necessary.
"?": Extent of impact is unknown (Examination is needed. Impact may become clear as study progresses.)

7) Airport: Kzyl-Olda

No.	Environmental Item	Description	Evaluation	Remarks
		Social Environment		
1	Resettlement	Resettlement due to land occupancy (transfer of rights of residence / land ownership)	[Y][N][?]	Existing airport to be used.
2	Economic Activities	Loss of bases of economic activities, such as land, and change of economic structure	[Y][N][?]	//
3	Traffic and Public Facilities	Impacts on schools, hospitals and present traffic conditions, such as the increase of traffic congestion and accidents	[Y][N][?]	//
4	Split of Communities	Community split due to interruption of area traffic	[Y][N][?]	//
5	Cultural Property	Damage to or loss of the value of churches, temples, shrines, archaeological remains or other cultural assets	[Y][N][?]	None
6	Water Rights and Rights of Common	Obstruction of fishing rights, water rights, rights of common	[Y][N][?]	Existing airport to be used.
7	Public Health Condition	Deterioration of public health and sanitary conditions due to generation of garbage and the increase of vermin	[Y][N][?]	//
8	Waste	Generation of construction and demolition waste, debris and logs	[Y][N][?]	Not much waste generated.
9	Hazards (Risk)	Increase in risk of landslides, cave-ins and accidents	[Y][N][?]	None
		Natural Environment		
10	Topography and Geology	Changes of valuable topography and geology due to excavation or filling work	[Y][N][?]	None
11	Soil Erosion	Topsoil erosion by rainfall after reclamation and vegetation removal	[Y][N][?]	//
12	Groundwater	Change of distribution of groundwater by large-scale excavation	[Y][N][?]	The pumping volume is unknown.
13	Hydrological Situation	Changes of river discharge and riverbed condition due to landfill and drainage inflow	[Y][N][?]	Existing airport to be used.
14	Coastal Zone	Coastal erosion and sedimentation due to landfill or change in marine condition	[Y][N][?]	None
15	Fauna and Flora	Obstruction of breeding and extinction of species due to change of habitats condition	[Y][N][?]	No rare species
16	Meteorology	Changes of temperature, precipitation, wind, etc. due to large -scale land reclamation and building construction	[Y][N][?]	None
17	Landscape	Change of topography and vegetation due to reclamation. Deterioration of aesthetic harmony by structures	[Y][N][?]	//
		Pollution		
18	Air Pollution	Pollution caused by exhaust gas or toxic gas from vehicles and factories	[Y][N][?]	No people live in the area.
19	Water Pollution	Pollution by inflow of silt, sand and effluent into rivers and groundwater	[Y][N][?]	The countermeasures for the anti-freeze chemicals are unknown.
20	Soil Contamination	Contamination of soil by dust and chemicals, such as herbicides	[Y][N][?]	//
21	Noise and Vibration	Noise and vibration generated by vehicles	[Y][N][?]	No people live in the area.
22	Land Subsidence	Deformation of land and land subsidence due to the lowering of groundwater table	[Y][N][?]	The existence of soft ground is unknown.
23	Offensive Odor	Generation of exhaust gas and offensive odor by facility construction and operation	[Y][N][?]	None
Overall Evaluation: Is either IEE or EIA necessary for the project implementation?			[Y]	

Note: "Y": Some impact is expected.
"N": No impact is expected. IEE / EIA is not necessary.
"?": Extent of impact is unknown (Examination is needed. Impact may become clear as study progresses.)

8) Airport: Aktau

No.	Environmental Item	Description	Evaluation	Remarks
		Social Environment		
1	Resettlement	Resettlement due to land occupancy (transfer of rights of residence / land ownership)	[Y][N][?]	Existing airport to be used.
2	Economic Activities	Loss of bases of economic activities, such as land, and change of economic structure	[Y][N][?]	//
3	Traffic and Public Facilities	Impacts on schools, hospitals and present traffic conditions, such as the increase of traffic congestion and accidents	[Y][N][?]	//
4	Split of Communities	Community split due to interruption of area traffic	[Y][N][?]	//
5	Cultural Property	Damage to or loss of the value of churches, temples, shrines, archaeological remains or other cultural assets	[Y][N][?]	None
6	Water Rights and Rights of Common	Obstruction of fishing rights, water rights, rights of common	[Y][N][?]	Existing airport to be used.
7	Public Health Condition	Deterioration of public health and sanitary conditions due to generation of garbage and the increase of vermin	[Y][N][?]	//
8	Waste	Generation of construction and demolition waste, debris and logs	[Y][N][?]	Not much waste generated.
9	Hazards (Risk)	Increase in risk of landslides, cave-ins and accidents	[Y][N][?]	The countermeasures for the rising of the Caspian Sea are unknown.
		Natural Environment		
10	Topography and Geology	Changes of valuable topography and geology due to excavation or filling work	[Y][N][?]	None
11	Soil Erosion	Topsoil erosion by rainfall after reclamation and vegetation removal	[Y][N][?]	//
12	Groundwater	Change of distribution of groundwater by large-scale excavation	[Y][N][?]	//
13	Hydrological Situation	Changes of river discharge and riverbed condition due to landfill and drainage inflow	[Y][N][?]	Existing airport to be used.
14	Coastal Zone	Coastal erosion and sedimentation due to landfill or change in marine condition	[Y][N][?]	None
15	Fauna and Flora	Obstruction of breeding and extinction of species due to change of habitats condition	[Y][N][?]	The routes of migratory birds are unknown.
16	Meteorology	Changes of temperature, precipitation, wind, etc. due to large -scale land reclamation and building construction	[Y][N][?]	None
17	Landscape	Change of topography and vegetation due to reclamation. Deterioration of aesthetic harmony by structures	[Y][N][?]	//
		Pollution		
18	Air Pollution	Pollution caused by exhaust gas or toxic gas from vehicles and factories	[Y][N][?]	No people live in the area.
19	Water Pollution	Pollution by inflow of silt, sand and effluent into rivers and groundwater	[Y][N][?]	None
20	Soil Contamination	Contamination of soil by dust and chemicals, such as herbicides	[Y][N][?]	//
21	Noise and Vibration	Noise and vibration generated by vehicles	[Y][N][?]	No resident
22	Land Subsidence	Deformation of land and land subsidence due to the lowering of groundwater table	[Y][N][?]	No people live in the area.
23	Offensive Odor	Generation of exhaust gas and offensive odor by facility construction and operation	[Y][N][?]	//
Overall Evaluation: Is either IEE or EIA necessary for the project implementation? [Y]				

Note: "Y": Some impact is expected.
"N": No impact is expected. IEE / EIA is not necessary.
"?": Extent of impact is unknown (Examination is needed. Impact may become clear as study progresses.)

9) Airport: Pavlodar

No.	Environmental Item	Description	Evaluation	Remarks
		Social Environment		
1	Resettlement	Resettlement due to land occupancy (transfer of rights of residence / land ownership)	[Y][N][?]	Existing airport to be used.
2	Economic Activities	Loss of bases of economic activities, such as land, and change of economic structure	[Y][N][?]	//
3	Traffic and Public Facilities	Impacts on schools, hospitals and present traffic conditions, such as the increase of traffic congestion and accidents	[Y][N][?]	//
4	Split of Communities	Community split due to interruption of area traffic	[Y][N][?]	//
5	Cultural Property	Damage to or loss of the value of churches, temples, shrines, archaeological remains or other cultural assets	[Y][N][?]	None .
6	Water Rights and Rights of Common	Obstruction of fishing rights, water rights, rights of common	[Y][N][?]	Existing airport to be used.
7	Public Health Condition	Deterioration of public health and sanitary conditions due to generation of garbage and the increase of vermin	[Y][N][?]	//
8	Waste	Generation of construction and demolition waste, debris and logs	[Y][N][?]	Not much waste generated.
9	Hazards (Risk)	Increase in risk of landslides, cave-ins and accidents	[Y][N][?]	Aircraft accident
		Natural Environment		
10	Topography and Geology	Changes of valuable topography and geology due to excavation or filling work	[Y][N][?]	None
11	Soil Erosion	Topsoil erosion by rainfall after reclamation and vegetation removal	[Y][N][?]	//
12	Groundwater	Change of distribution of groundwater by large-scale excavation	[Y][N][?]	//
13	Hydrological Situation	Changes of river discharge and riverbed condition due to landfill and drainage inflow	[Y][N][?]	//
14	Coastal Zone	Coastal erosion and sedimentation due to landfill or change in marine condition	[Y][N][?]	//
15	Fauna and Flora	Obstruction of breeding and extinction of species due to change of habitats condition	[Y][N][?]	//
16	Meteorology	Changes of temperature, precipitation, wind, etc. due to large -scale land reclamation and building construction	[Y][N][?]	//
17	Landscape	Change of topography and vegetation due to reclamation. Deterioration of aesthetic harmony by structures	[Y][N][?]	//
		Pollution		
18	Air Pollution	Pollution caused by exhaust gas or toxic gas from vehicles and factories	[Y][N][?]	The number of flights in 2005 is unknown.
19	Water Pollution	Pollution by inflow of silt, sand and effluent into rivers and groundwater	[Y][N][?]	None
20	Soil Contamination	Contamination of soil by dust and chemicals, such as herbicides	[Y][N][?]	//
21	Noise and Vibration	Noise and vibration generated by vehicles	[Y][N][?]	The number of flights in 2005 is unknown.
22	Land Subsidence	Deformation of land and land subsidence due to the lowering of groundwater table	[Y][N][?]	None
23	Offensive Odor	Generation of exhaust gas and offensive odor by facility construction and operation	[Y][N][?]	//
Overall Evaluation: Is either IEE or EIA necessary for the project implementation? [Y]				

Note: "Y": Some impact is expected.
"N": No impact is expected. IEE / EIA is not necessary.
"?": Extent of impact is unknown (Examination is needed. Impact may become clear as study progresses.)

10) Airport: Uralsk

No.	Environmental Item	Description	Evaluation	Remarks
		Social Environment		
1	Resettlement	Resettlement due to land occupancy (transfer of rights of residence / land ownership)	[Y][N][?]	Existing airport to be used.
2	Economic Activities	Loss of bases of economic activities, such as land, and change of economic structure	[Y][N][?]	//
3	Traffic and Public Facilities	Impacts on schools, hospitals and present traffic conditions, such as the increase of traffic congestion and accidents	[Y][N][?]	//
4	Split of Communities	Community split due to interruption of area traffic	[Y][N][?]	//
5	Cultural Property	Damage to or loss of the value of churches, temples, shrines, archaeological remains or other cultural assets	[Y][N][?]	None
6	Water Rights and Rights of Common	Obstruction of fishing rights, water rights, rights of common	[Y][N][?]	Existing airport to be used.
7	Public Health Condition	Deterioration of public health and sanitary conditions due to generation of garbage and the increase of vermin	[Y][N][?]	//
8	Waste	Generation of construction and demolition waste, debris and logs	[Y][N][?]	Not much waste generated.
9	Hazards (Risk)	Increase in risk of landslides, cave-ins and accidents	[Y][N][?]	None
	Natural Environment			
10	Topography and Geology	Changes of valuable topography and geology due to excavation or filling work	[Y][N][?]	None
11	Soil Erosion	Topsoil erosion by rainfall after reclamation and vegetation removal	[Y][N][?]	//
12	Groundwater	Change of distribution of groundwater by large-scale excavation	[Y][N][?]	The drinking water supply system is unknown.
13	Hydrological Situation	Changes of river discharge and riverbed condition due to landfill and drainage inflow	[Y][N][?]	None
14	Coastal Zone	Coastal erosion and sedimentation due to landfill or change in marine condition	[Y][N][?]	//
15	Fauna and Flora	Obstruction of breeding and extinction of species due to change of habitats condition	[Y][N][?]	//
16	Meteorology	Changes of temperature, precipitation, wind, etc. due to large -scale land reclamation and building construction	[Y][N][?]	//
17	Landscape	Change of topography and vegetation due to reclamation. Deterioration of aesthetic harmony by structures	[Y][N][?]	//
	Pollution			
18	Air Pollution	Pollution caused by exhaust gas or toxic gas from vehicles and factories	[Y][N][?]	The number of flights in 2005 is unknown.
19	Water Pollution	Pollution by inflow of silt, sand and effluent into rivers and groundwater	[Y][N][?]	The capability of the water treatment plant is unknown.
20	Soil Contamination	Contamination of soil by dust and chemicals, such as herbicides	[Y][N][?]	None
21	Noise and Vibration	Noise and vibration generated by vehicles	[Y][N][?]	The number of flights in 2005 is unknown.
22	Land Subsidence	Deformation of land and land subsidence due to the lowering of groundwater table	[Y][N][?]	None
23	Offensive Odor	Generation of exhaust gas and offensive odor by facility construction and operation	[Y][N][?]	//
Overall Evaluation: Is either IEE or EIA necessary for the project implementation? [Y]				

Note: "Y": Some impact is expected.
"N": No impact is expected. IEE / EIA is not necessary.
"?": Extent of impact is unknown (Examination is needed. Impact may become clear as study progresses.)

11) Airport: Ust-Kamenogorosk, Balkhash, Kostanay, Semipalatinsk

No.	Environmental Item	Description	Evaluation	Remarks
		Social Environment		
1	Resettlement	Resettlement due to land occupancy (transfer of rights of residence / land ownership)	[Y][N][?]	Existing airport to be used.
2	Economic Activities	Loss of bases of economic activities, such as land, and change of economic structure	[Y][N][?]	//
3	Traffic and Public Facilities	Impacts on schools, hospitals and present traffic conditions, such as the increase of traffic congestion and accidents	[Y][N][?]	The condition of access roads is unknown.
4	Split of Communities	Community split due to interruption of area traffic	[Y][N][?]	Existing airport to be used.
5	Cultural Property	Damage to or loss of the value of churches, temples, shrines, archaeological remains or other cultural assets	[Y][N][?]	//
6	Water Rights and Rights of Common	Obstruction of fishing rights, water rights, rights of common	[Y][N][?]	//
7	Public Health Condition	Deterioration of public health and sanitary conditions due to generation of garbage and the increase of vermin	[Y][N][?]	//
8	Waste	Generation of construction and demolition waste, debris and logs	[Y][N][?]	Not much waste generated.
9	Hazards (Risk)	Increase in risk of landslides, cave-ins and accidents	[Y][N][?]	Aircraft accident
		Natural Environment		
10	Topography and Geology	Changes of valuable topography and geology due to excavation or filling work	[Y][N][?]	Existing airport to be used.
11	Soil Erosion	Topsoil erosion by rainfall after reclamation and vegetation removal	[Y][N][?]	//
12	Groundwater	Change of distribution of groundwater by large-scale excavation	[Y][N][?]	The plans for groundwater usage are unknown.
13	Hydrological Situation	Changes of river discharge and riverbed condition due to landfill and drainage inflow	[Y][N][?]	Existing airport to be used.
14	Coastal Zone	Coastal erosion and sedimentation due to landfill or change in marine condition	[Y][N][?]	None
15	Fauna and Flora	Obstruction of breeding and extinction of species due to change of habitats condition	[Y][N][?]	The state of fauna and flora is unknown.
16	Meteorology	Changes of temperature, precipitation, wind, etc. due to large -scale land reclamation and building construction	[Y][N][?]	None
17	Landscape	Change of topography and vegetation due to reclamation. Deterioration of aesthetic harmony by structures	[Y][N][?]	Existing airport to be used.
		Pollution		
18	Air Pollution	Pollution caused by exhaust gas or toxic gas from vehicles and factories	[Y][N][?]	The number of flights in 2005 is unknown.
19	Water Pollution	Pollution by inflow of silt, sand and effluent into rivers and groundwater	[Y][N][?]	The capability of the water treatment plant is unknown.
20	Soil Contamination	Contamination of soil by dust and chemicals, such as herbicides	[Y][N][?]	The countermeasures for the anti-freeze chemicals are unknown.
21	Noise and Vibration	Noise and vibration generated by vehicles	[Y][N][?]	The number of flights in 2005 is unknown.
22	Land Subsidence	Deformation of land and land subsidence due to the lowering of groundwater table	[Y][N][?]	The existence of soft ground is unknown.
23	Offensive Odor	Generation of exhaust gas and offensive odor by facility construction and operation	[Y][N][?]	None
Overall Evaluation: Is either IEE or EIA necessary for the project implementation?			[Y]	

Note1: "Y": Some impact is expected.
"N": No impact is expected. IEE / EIA is not necessary.
"?": Extent of impact is unknown (Examination is needed. Impact may become clear as study progresses.)
Note2: Information taken from maps.

12) Airport: Arkalyk, Ekibastuz, Kokchetau, Petropavlovsk, Zhambul, Zhezkazgan

No.	Environmental Item	Description	Evaluation	Remarks
		Social Environment		
1	Resettlement	Resettlement due to land occupancy (transfer of rights of residence / land ownership)	[Y][N][?]	Existing airport to be used.
2	Economic Activities	Loss of bases of economic activities, such as land, and change of economic structure	[Y][N][?]	//
3	Traffic and Public Facilities	Impacts on schools, hospitals and present traffic conditions, such as the increase of traffic congestion and accidents	[Y][N][?]	There are no residents in the vicinity of airport.
4	Split of Communities	Community split due to interruption of area traffic	[Y][N][?]	Existing airport to be used.
5	Cultural Property	Damage to or loss of the value of churches, temples, shrines, archaeological remains or other cultural assets	[Y][N][?]	//
6	Water Rights and Rights of Common	Obstruction of fishing rights, water rights, rights of common	[Y][N][?]	//
7	Public Health Condition	Deterioration of public health and sanitary conditions due to generation of garbage and the increase of vermin	[Y][N][?]	//
8	Waste	Generation of construction and demolition waste, debris and logs	[Y][N][?]	Not much waste generated.
9	Hazards (Risk)	Increase in risk of landslides, cave-ins and accidents	[Y][N][?]	There are no residents
		Natural Environment		
10	Topography and Geology	Changes of valuable topography and geology due to excavation or filling work	[Y][N][?]	Existing airport to be used.
11	Soil Erosion	Topsoil erosion by rainfall after reclamation and vegetation removal	[Y][N][?]	//
12	Groundwater	Change of distribution of groundwater by large-scale excavation	[Y][N][?]	The plans for groundwater usage are unknown.
13	Hydrological Situation	Changes of river discharge and riverbed condition due to landfill and drainage inflow	[Y][N][?]	Existing airport to be used.
14	Coastal Zone	Coastal erosion and sedimentation due to landfill or change in marine condition	[Y][N][?]	None
15	Fauna and Flora	Obstruction of breeding and extinction of species due to change of habitats condition	[Y][N][?]	The state of fauna and flora is unknown.
16	Meteorology	Changes of temperature, precipitation, wind, etc. due to large -scale land reclamation and building construction	[Y][N][?]	None
17	Landscape	Change of topography and vegetation due to reclamation. Deterioration of aesthetic harmony by structures	[Y][N][?]	Existing airport to be used.
		Pollution		
18	Air Pollution	Pollution caused by exhaust gas or toxic gas from vehicles and factories	[Y][N][?]	The number of flights in 2005 is unknown.
19	Water Pollution	Pollution by inflow of silt, sand and effluent into rivers and groundwater	[Y][N][?]	The capability of the water treatment plant is unknown.
20	Soil Contamination	Contamination of soil by dust and chemicals, such as herbicides	[Y][N][?]	The usage of anti-freeze chemicals is unknown.
21	Noise and Vibration	Noise and vibration generated by vehicles	[Y][N][?]	The number of flights in 2005 is unknown.
22	Land Subsidence	Deformation of land and land subsidence due to the lowering of groundwater table	[Y][N][?]	The existence of soft ground is unknown.
23	Offensive Odor	Generation of exhaust gas and offensive odor by facility construction and operation	[Y][N][?]	None
Overall Evaluation: Is either IEE or EIA necessary for the project implementation?			[Y]	

Note1: "Y": Some impact is expected.
"N": No impact is expected. IEE / EIA is not necessary.
"?": Extent of impact is unknown (Examination is needed. Impact may become clear as study progresses.)
Note2: Information taken from maps.

13) Airport: Urdzhar, Zaysan

No.	Environmental Item	Description	Evaluation	Remarks
		Social Environment		
1	Resettlement	Resettlement due to land occupancy (transfer of rights of residence / land ownership)	[Y][N][?]	The existence of residences is unknown.
2	Economic Activities	Loss of bases of economic activities, such as land, and change of economic structure	[Y][N][?]	None
3	Traffic and Public Facilities	Impacts on schools, hospitals and present traffic conditions, such as the increase of traffic congestion and accidents	[Y][N][?]	The state of access roads is unknown.
4	Split of Communities	Community split due to interruption of area traffic	[Y][N][?]	//
5	Cultural Property	Damage to or loss of the value of churches, temples, shrines, archaeological remains or other cultural assets	[Y][N][?]	The state of cultural property is unknown.
6	Water Rights and Rights of Common	Obstruction of fishing rights, water rights, rights of common	[Y][N][?]	The state of water rights, rights of common is unknown.
7	Public Health Condition	Deterioration of public health and sanitary conditions due to generation of garbage and the increase of vermin	[Y][N][?]	None
8	Waste	Generation of construction and demolition waste, debris and logs	[Y][N][?]	Not much waste generated.
9	Hazards (Risk)	Increase in risk of landslides, cave-ins and accidents	[Y][N][?]	The existence of residences is unknown.
		Natural Environment		
10	Topography and Geology	Changes of valuable topography and geology due to excavation or filling work	[Y][N][?]	The state of topography and geology is unknown.
11	Soil Erosion	Topsoil erosion by rainfall after reclamation and vegetation removal	[Y][N][?]	The condition of soil is unknown.
12	Groundwater	Change of distribution of groundwater by large-scale excavation	[Y][N][?]	The plans for groundwater usage are unknown.
13	Hydrological Situation	Changes of river discharge and riverbed condition due to landfill and drainage inflow	[Y][N][?]	None
14	Coastal Zone	Coastal erosion and sedimentation due to landfill or change in marine condition	[Y][N][?]	//
15	Fauna and Flora	Obstruction of breeding and extinction of species due to change of habitats condition	[Y][N][?]	The state of fauna and flora is unknown.
16	Meteorology	Changes of temperature, precipitation, wind, etc. due to large -scale land reclamation and building construction	[Y][N][?]	None
17	Landscape	Change of topography and vegetation due to reclamation. Deterioration of aesthetic harmony by structures	[Y][N][?]	The state of topography is unknown.
		Pollution		
18	Air Pollution	Pollution caused by exhaust gas or toxic gas from vehicles and factories	[Y][N][?]	The existence of residences is unknown.
19	Water Pollution	Pollution by inflow of silt, sand and effluent into rivers and groundwater	[Y][N][?]	The capability of the water treatment plant is unknown.
20	Soil Contamination	Contamination of soil by dust and chemicals, such as herbicides	[Y][N][?]	The countermeasures for the anti-freeze chemical are unknown.
21	Noise and Vibration	Noise and vibration generated by vehicles	[Y][N][?]	The existence of residences is unknown.
22	Land Subsidence	Deformation of land and land subsidence due to the lowering of groundwater table	[Y][N][?]	The existence of soft ground is unknown.
23	Offensive Odor	Generation of exhaust gas and offensive odor by facility construction and operation	[Y][N][?]	None
Overall Evaluation: Is either IEE or EIA necessary for the project implementation?			[Y]	

Note1: "Y": Some impact is expected.
"N": No impact is expected. IEE / EIA is not necessary.
"?": Extent of impact is unknown (Examination is needed. Impact may become clear as study progresses.)
Note2: Because there is no information available these airports,the evaluations were based on common sense.

Appendix-5.6 (3) Scoping

1) Airport: Akmola

No.	Environmental Item	Evaluation	Reason for Evaluation
Social Environment			
1	Resettlement	-	Existing airport to be used.
2	Economic Activities	-	//
3	Traffic/Public Facilities	-	//
4	Split of Communities	-	//
5	Cultural Property	-	None
6	Water Rights and Rights of Common	-	Existing airport to be used.
7	Public Health Condition	-	//
8	Waste	-	Not much waste generated..
9	Hazards(Risk)	C	The land use plan in the vicinity of airport in 2005 is unknown.
Natural Environment			
10	Topography and Geology	-	None
11	Soil Erosion	-	//
12	Groundwater	-	//
13	Hydrological Situation	-	//
14	Coastal Zone	-	//
15	Fauna and Flora	C	There are staging points for migratory birds.
16	Meteorology	-	None
17	Landscape	-	//
Pollution			
18	Air Pollution	C	The land use plan in the vicinity of airport in 2005 is unknown.
19	Water Pollution	C	The surface water treatment system is unknown.
20	Soil Contamination	-	None
21	Noise and Vibration	C	The land use plan in the vicinity of airport in 2005 is unknown.
22	Land Subsidence	C	The existence of soft ground is unknown.
23	Offensive Odors	-	None

Note 1) "A": Serious impact is expected.
"B": Some impact is expected.
"C": Extent of impact is unknown, (Examination is needed. The impacts may become clear as study progresses.)
"-": No impact is expected. IEE / EIA is not necessary.

Note 2) The evaluation should be made with reference to the "Environmental Guide Lines for Infrastructure Projects, Airport, 1994,1, Japan International Cooperation Agency"

2) Airport: Aktyubinsk

No.	Environmental Item	Evaluation	Reason for Evaluation
Social Environment			
1	Resettlement	-	Existing airport to be used.
2	Economic Activities	-	//
3	Traffic/Public Facilities	-	//
4	Split of Communities	-	//
5	Cultural Property	-	None
6	Water Rights and Rights of Common	-	Existing airport to be used.
7	Public Health Condition	-	//
8	Waste	-	Not much waste generated.
9	Hazards(Risk)	B	Aircraft accident
Natural Environment			
10	Topography and Geology	-	None
11	Soil Erosion	-	//
12	Groundwater	C	The pumping volume is unknown.
13	Hydrological Situation	-	None
14	Coastal Zone	-	//
15	Fauna and Flora	-	//
16	Meteorology	-	//
17	Landscape	-	//
Pollution			
18	Air Pollution	C	The number of flights in 2005 is unknown.
19	Water Pollution	-	None
20	Soil Contamination	-	//
21	Noise and Vibration	B	There are residents in the area who will be affected.
22	Land Subsidence	-	None
23	Offensive Odors	-	//

Note: Evaluation categories ("A", "B", "C", "- ") are the same as those used for Akmola airport.

3) Airport: Almaty

No.	Environmental Item	Evaluation	Reason for Evaluation
Social Environment			
1	Resettlement	-	Existing airport to be used.
2	Economic Activities	-	//
3	Traffic/Public Facilities	C	The increase of traffic is unknown.
4	Split of Communities	-	Existing airport to be used.
5	Cultural Property	-	None
6	Water Rights and Rights of Common	-	Existing airport to be used.
7	Public Health Condition	-	//
8	Waste	-	Not much waste generated.
9	Hazards(Risk)	B	Aircraft accident
Natural Environment			
10	Topography and Geology	-	None
11	Soil Erosion	-	//
12	Groundwater	-	//
13	Hydrological Situation	-	//
14	Coastal Zone	-	//
15	Fauna and Flora	-	//
16	Meteorology	-	//
17	Landscape	-	//
Pollution			
18	Air Pollution	C	There are many residents in the vicinity of the airport.
19	Water Pollution	C	The surface water treatment system is unknown.
20	Soil Contamination	-	None
21	Noise and Vibration	B	There are many residents in the vicinity of the airport.
22	Land Subsidence	-	None
23	Offensive Odors	-	//

Note: Evaluation categories ("A", "B", "C", "- ") are the same as those used for Akmola airport.

4) Airport: Shimkent

No.	Environmental Item	Evaluation	Reason for Evaluation
Social Environment			
1	Resettlement	-	Existing airport to be used.
2	Economic Activities	-	〃
3	Traffic/Public Facilities	-	〃
4	Split of Communities	-	Existing airport to be used.
5	Cultural Property	-	〃
6	Water Rights and Rights of Common	-	〃
7	Public Health Condition	-	〃
8	Waste	-	Not much waste generated.
9	Hazards(Risk)	B	Aircraft accident
Natural Environment			
10	Topography and Geology	-	Existing airport to be used.
11	Soil Erosion	-	〃
12	Groundwater	C	The plans for groundwater usage are unknown.
13	Hydrological Situation	-	Existing airport to be used.
14	Coastal Zone	-	None
15	Fauna and Flora	C	The state of fauna and flora is unknown.
16	Meteorology	-	None
17	Landscape	-	Existing airport to be used.
Pollution			
18	Air Pollution	C	The number of flights in 2005 is unknown.
19	Water Pollution	C	The capability of the water treatment plant is unknown.
20	Soil Contamination	C	The usage of anti-freeze chemicals is unknown.
21	Noise and Vibration	C	The number of flights in 2005 is unknown.
22	Land Subsidence	C	The existence of soft ground is unknown.
23	Offensive Odors	-	None

Note: Evaluation categories ("A", "B", "C", "- ") are the same as those used for Akmola airport.

5) Airport: Atyrau

No.	Environmental Item	Evaluation	Reason for Evaluation
Social Environment			
1	Resettlement	-	Existing airport to be used.
2	Economic Activities	-	〃
3	Traffic/Public Facilities	-	〃
4	Split of Communities	-	〃
5	Cultural Property	-	None
6	Water Rights and Rights of Common	-	Existing airport to be used.
7	Public Health Condition	-	〃
8	Waste	-	Not much waste generated.
9	Hazards(Risk)	C	The countermeasures for the rising of the Caspian Sea and aircraft accidents are unknown.
Natural Environment			
10	Topography and Geology	-	None
11	Soil Erosion	-	〃
12	Groundwater	-	〃
13	Hydrological Situation	-	〃
14	Coastal Zone	-	〃
15	Fauna and Flora	-	〃
16	Meteorology	-	〃
17	Landscape	-	〃
Pollution			
18	Air Pollution	C	There are many residents in the vicinity of the airport.
19	Water Pollution	C	The capability of the water treatment plant is unknown.
20	Soil Contamination	-	None
21	Noise and Vibration	B	There are many residents in the vicinity of the airport.
22	Land Subsidence	-	None
23	Offensive Odors	-	〃

Note: Evaluation categories ("A", "B", "C", "- ") are the same as those used for Akmola airport.

6) Airport: Karaganda

No.	Environmental Item	Evaluation	Reason for Evaluation
Social Environment			
1	Resettlement	-	Existing airport to be used.
2	Economic Activities	-	//
3	Traffic/Public Facilities	-	//
4	Split of Communities	-	//
5	Cultural Property	-	None
6	Water Rights and Rights of Common	-	Existing airport to be used.
7	Public Health Condition	-	//
8	Waste	-	Not much waste generated.
9	Hazards(Risk)	-	None
Natural Environment			
10	Topography and Geology	-	None
11	Soil Erosion	-	//
12	Groundwater	C	The pumping volume is unknown.
13	Hydrological Situation	-	None
14	Coastal Zone	-	//
15	Fauna and Flora	C	The state of migratory birds is unknown.
16	Meteorology	-	None
17	Landscape	-	//
Pollution			
18	Air Pollution	-	No people live in the area.
19	Water Pollution	-	None
20	Soil Contamination	-	//
21	Noise and Vibration	C	The number of flights in 2005 is unknown.
22	Land Subsidence	-	None
23	Offensive Odors	-	//

Note: Evaluation categories ("A", "B", "C", "- ") are the same as those used for Akmola airport.

7) Airport: Kzyl-Olda

No.	Environmental Item	Evaluation	Reason for Evaluation
Social Environment			
1	Resettlement	-	Existing airport to be used.
2	Economic Activities	-	//
3	Traffic/Public Facilities	-	//
4	Split of Communities	-	//
5	Cultural Property	-	None
6	Water Rights and Rights of Common	-	Existing airport to be used.
7	Public Health Condition	-	//
8	Waste	-	Not much waste generated.
9	Hazards(Risk)	-	None
Natural Environment			
10	Topography and Geology	-	None
11	Soil Erosion	-	//
12	Groundwater	C	The pumping volume is unknown.
13	Hydrological Situation	-	Existing airport to be used.
14	Coastal Zone	-	None
15	Fauna and Flora	-	No rare species
16	Meteorology	-	None
17	Landscape	-	//
Pollution			
18	Air Pollution	-	No people live in the area.
19	Water Pollution	C	The countermeasures for anti-freeze chemicals are unknown and undecided.
20	Soil Contamination	C	//
21	Noise and Vibration	-	No people live in the area.
22	Land Subsidence	C	The existence of soft ground is unknown.
23	Offensive Odors	-	None

Note: Evaluation categories ("A", "B", "C", "- ") are the same as those used for Akmola airport.

8) Airport: Aktau

No.	Environmental Item	Evaluation	Reason for Evaluation
Social Environment			
1	Resettlement	-	Existing airport to be used.
2	Economic Activities	-	〃
3	Traffic/Public Facilities	-	〃
4	Split of Communities	-	〃
5	Cultural Property	-	None
6	Water Rights and Rights of Common	-	Existing airport to be used.
7	Public Health Condition	-	〃
8	Waste	-	Not much waste generated.
9	Hazards(Risk)	C	The countermeasures for the rising of the Caspian Sea are unknown.
Natural Environment			
10	Topography and Geology	-	None
11	Soil Erosion	-	〃
12	Groundwater	-	〃
13	Hydrological Situation	-	Existing airport to be used.
14	Coastal Zone	-	None
15	Fauna and Flora	C	The routes of migratory birds are unknown.
16	Meteorology	-	None
17	Landscape	-	〃
Pollution			
18	Air Pollution	-	No people live in the area.
19	Water Pollution	-	None
20	Soil Contamination	-	〃
21	Noise and Vibration	-	No resident
22	Land Subsidence	-	No people live in the area.
23	Offensive Odors	-	〃

Note: Evaluation categories ("A", "B", "C", "- ") are the same as those used for Akmola airport.

9) Airport: Pavlodar

No.	Environmental Item	Evaluation	Reason for Evaluation
Social Environment			
1	Resettlement	-	Existing airport to be used.
2	Economic Activities	-	〃
3	Traffic/Public Facilities	-	〃
4	Split of Communities	-	〃
5	Cultural Property	-	None
6	Water Rights and Rights of Common	-	Existing airport to be used.
7	Public Health Condition	-	〃
8	Waste	-	Not much waste generated.
9	Hazards(Risk)	B	Aircraft accidents
Natural Environment			
10	Topography and Geology	-	None
11	Soil Erosion	-	〃
12	Groundwater	-	〃
13	Hydrological Situation	-	〃
14	Coastal Zone	-	〃
15	Fauna and Flora	-	〃
16	Meteorology	-	〃
17	Landscape	-	〃
Pollution			
18	Air Pollution	C	The number of flights in 2005 is unknown.
19	Water Pollution	-	None
20	Soil Contamination	-	〃
21	Noise and Vibration	C	The number of flights in 2005 is unknown.
22	Land Subsidence	-	None
23	Offensive Odors	-	〃

Note: Evaluation categories ("A", "B", "C", "- ") are the same as those used for Akmola airport.

10) Airport: Uralsk

No.	Environmental Item	Evaluation	Reason for Evaluation
Social Environment			
1	Resettlement	-	Existing airport to be used.
2	Economic Activities	-	〃
3	Traffic/Public Facilities	-	〃
4	Split of Communities	-	〃
5	Cultural Property	-	None
6	Water Rights and Rights of Common	-	Existing airport to be used.
7	Public Health Condition	-	〃
8	Waste	-	Not much waste generated.
9	Hazards(Risk)	-	None
Natural Environment			
10	Topography and Geology	-	None
11	Soil Erosion	-	〃
12	Groundwater	C	The drinking water supply system is unknown.
13	Hydrological Situation	-	None
14	Coastal Zone	-	〃
15	Fauna and Flora	-	〃
16	Meteorology	-	〃
17	Landscape	-	〃
Pollution			
18	Air Pollution	C	The number of flights in 2005 is unknown.
19	Water Pollution	C	The capability of the water treatment plant is unknown.
20	Soil Contamination	-	None
21	Noise and Vibration	C	The number of flights in 2005 is unknown.
22	Land Subsidence	-	None
23	Offensive Odors	-	〃

Note: Evaluation categories ("A", "B", "C", "- ") are the same as those used for Akmola airport.

11) Airport: Ust-Kamenogorosk, Balkhash, Kostanay, Semipalatinsk

No.	Environmental Item	Evaluation	Reason for Evaluation
Social Environment			
1	Resettlement	-	Existing airport to be used.
2	Economic Activities	-	〃
3	Traffic/Public Facilities	C	The condition of access roads is unknown.
4	Split of Communities	-	Existing airport to be used.
5	Cultural Property	-	〃
6	Water Rights and Rights of Common	-	〃
7	Public Health Condition	-	〃
8	Waste	-	Not much waste generated.
9	Hazards(Risk)	B	Aircraft accident
Natural Environment			
10	Topography and Geology	-	Existing airport to be used.
11	Soil Erosion	-	〃
12	Groundwater	C	The plans for groundwater usage are unknown.
13	Hydrological Situation	-	Existing airport to be used.
14	Coastal Zone	-	None
15	Fauna and Flora	C	The state of fauna and flora is unknown.
16	Meteorology	-	None
17	Landscape	-	Existing airport to be used.
Pollution			
18	Air Pollution	C	The number of flights in 2005 is unknown.
19	Water Pollution	C	The capability of the water treatment plant is unknown.
20	Soil Contamination	C	The usage of anti-freeze chemicals is unknown.
21	Noise and Vibration	C	The number of flights in 2005 is unknown.
22	Land Subsidence	C	The existence of soft ground is unknown.
23	Offensive Odors	-	None

Note: Evaluation categories ("A", "B", "C", "- ") are the same as those used for Akmola airport.

12) Airport: Arkalyk, Ekibastuz, Kokchetau, Petropavlovsk, Zhambul, Zhezkazgan

No.	Environmental Item	Evaluation	Reason for Evaluation
Social Environment			
1	Resettlement	-	Existing airport to be used.
2	Economic Activities	-	//
3	Traffic/Public Facilities	-	There are no residents in the vicinity of airport.
4	Split of Communities	-	Existing airport to be used.
5	Cultural Property	-	//
6	Water Rights and Rights of Common	-	//
7	Public Health Condition	-	//
8	Waste	-	Not much waste generated.
9	Hazards(Risk)	-	There are no residents in the vicinity of airport.
Natural Environment			
10	Topography and Geology	-	Existing airport to be used.
11	Soil Erosion	-	//
12	Groundwater	C	The plans for groundwater usage are unknown.
13	Hydrological Situation	-	Existing airport to be used.
14	Coastal Zone	-	None
15	Fauna and Flora	C	The state of fauna and flora is unknown.
16	Meteorology	-	None
17	Landscape	-	Existing airport to be used.
Pollution			
18	Air Pollution	-	No people live in the area.
19	Water Pollution	C	The capability of the water treatment plant is unknown.
20	Soil Contamination	C	The usage of anti-freeze chemicals is unknown.
21	Noise and Vibration	-	No people live in the area.
22	Land Subsidence	C	The existence of soft ground is unknown.
23	Offensive Odors	-	None

Note: Evaluation categories ("A", "B", "C", "- ") are the same as those used for Akmola airport.

13) Airport: Urdzhar, Zaysan

No.	Environmental Item	Evaluation	Reason for Evaluation
Social Environment			
1	Resettlement	C	The existence of residences is unknown.
2	Economic Activities	-	None
3	Traffic/Public Facilities	C	The condition of access roads is unknown.
4	Split of Communities	C	//
5	Cultural Property	C	The state of cultural property is unknown.
6	Water Rights and Rights of Common	C	The state of water rights, rights of common is unknown.
7	Public Health Condition	-	None
8	Waste	-	Not much waste generated.
9	Hazards(Risk)	C	The existence of residences is unknown.
Natural Environment			
10	Topography and Geology	C	The state of topography and geology is unknown.
11	Soil Erosion	C	The condition of soil is unknown.
12	Groundwater	C	The plans for groundwater usage are unknown.
13	Hydrological Situation	-	None
14	Coastal Zone	-	//
15	Fauna and Flora	C	The state of fauna and flora is unknown.
16	Meteorology	-	None
17	Landscape	C	The state of topography is unknown.
Pollution			
18	Air Pollution	C	The existence of residences is unknown.
19	Water Pollution	C	The capability of the water treatment plant is unknown.
20	Soil Contamination	C	The usage of anti-freeze chemicals is unknown.
21	Noise and Vibration	C	The existence of residences is unknown.
22	Land Subsidence	C	The existence of soft ground is unknown.
23	Offensive Odors	-	None

Note: Evaluation categories ("A", "B", "C", "- ") are the same as those used for Akmola airport.

Appendix-5.6 (4) OECF-Environmental Check List (Airport)

1) Airport: Akmola

Check Item	Evaluation	Point at Issue	Measures & Policy for Management	Remarks
Pollution;				
1. Aquatic organisms, fisheries & other water utilization.	-	-	-	
2. Water pollution caused by sewage and soil erosion.	C	-Treatment of surface water from airport	- Surface water from the airport will be dealt with by treatment plants following water quality standards.	See Notice2
3. Aircraft noise pollution.	C	-Aircraft noise	-As necessary, consider measures against aircraft noise.	
Natural Environment;				
1. Ecological effects.	C	-Migratory birds	-As necessary, consider measures regarding the conflict of birds and aircraft.	
2. Erosion of river and beach	-	-	-	
3. Effects on landscape	-	-	-	
Social Environment;				
1. Effect on historical ruins and cultural assets.	-	-	-	
2. Effect on existing infrastructure.	-	-	-	
3. Resettlement.	-	-	-	
Others;				
1. Environmental impact during construction phase.	C	-Muddy water discharge	- As necessary, consider measures against muddy water discharge.	
2. Environmental monitoring system (In the case of no existing plan: "-")	-	-Monitoring systems of aircraft noise	- As necessary, establish environmental monitoring systems.	

Notice1)"A": An adverse effect would unquestionably be induced by the project.
"B": An adverse effect is likely to be induced by the project.
"C": It cannot be confirmed at this stage whether an adverse effect is likely or not.
"-": There is no possibility of an adverse effect being induced by the project.

Notice2) Water quality standard for fishery of Kazakhstan, 0.02 mg/l for Chrome, 0.1 mg/l for Iron, 0.001 mg/l for Copper, 0.01 mg/l for Zinc(2+), 0.0001 mg/l for Mercury, 0.05 mg/l for Arsenic, 0.05 mg/l for Oil-Products

2) Airport: Aktyubinsk

Check Item	Evaluation*	Point at Issue	Measures & Policy for Management	Remarks
Pollution;				
1. Aquatic organisms, fisheries & other water utilization.	-	-	-	
2. Water pollution caused by sewage and soil erosion.	-	-	-	
3. Aircraft noise pollution.	B	-Aircraft noise	- As necessary, consider measures against aircraft noise.	
Natural Environment;				
1. Ecological effects.	-	-	-	
2. Erosion of river and beach	-	-	-	
3. Effects on landscape	-	-	-	
All Items of Social Environment	-	-	-	
All Items of Others are the same as Akmola airport				

* The Evaluation scores ("A", "B","C","-") are the same as those used for Akmola airport.

3) Airport: Almaty

Check Item	Evaluation*	Point at Issue	Measures & Policy for Management	Remarks
Pollution;				
1. Aquatic organisms, fisheries & other water utilization.	-	-	-	
2. Water pollution caused by sewage and soil erosion.	C	-Treatment of surface water from airport	- Surface water from the airport will be dealt with by treatment plants following water quality standards.	See Notice1
3. Aircraft noise pollution.	B	- Aircraft noise	- As necessary, consider measures against aircraft noise.	
Natural Environment;				
1. Ecological effects.	-	-	-	
2. Erosion of river and beach	-	-	-	
3. Effects on landscape	-	-	-	
All Items of Social Environment	-	-	-	
All Items of Others are the same as Akmola airport.				

* The Evaluation scores ("A", "B","C","-") are the same as those used for Akmola airport.

Notice1) Water quality standard for fishery of Kazakhstan, 0.02 mg/l for Chrome, 0.1 mg/l for Iron, 0.001 mg/l for Copper, 0.01 mg/l for Zinc(2+), 0.0001 mg/l for Mercury, 0.05 mg/l for Arsenic, 0.05 mg/l for Oil-Products

4) Airport: Shimkent

Check Item	Evaluation*	Point at Issue	Measures & Policy for Management	Remarks
Pollution;				
1. Aquatic organisms, fisheries & other water utilization.	-	-	-	
2. Water pollution caused by sewage and soil erosion.	C	-Treatment of sewage	- Sewage will be dealt with by treatment plants following water quality standards.	See Notice1
3. Aircraft noise pollution.	C	-Aircraft noise measures	- As necessary, consider measures against aircraft noise.	
Natural Environment;				
1. Ecological effects.	C	-Fauna and flora	-Investigation of fauna and flora	
2. Erosion of river and beach	-	-	-	
3. Effects on landscape	-	-	-	
All Items of Social Environment	-	-	-	
All Items of Others are the same as Akmola airport.				

* The Evaluation scores ("A", "B","C","-") are the same as those used for Akmola airport.

Notice1:Sewage effluent standards in Japan: 20 mg/l for BOD, 60 mg/l for nitrate, 8 mg/l for Phosphate, 70 mg/l for SS, 3000 numbers/100ml for Coliform.

5) Airport: Atyrau

Check Item	Evaluation*	Point at Issue	Measures & Policy for Management	Remarks
Pollution;				
1. Aquatic organisms, fisheries & other water utilization.	-	-	-	
2. Water pollution caused by sewage and soil erosion.	C	-Treatment of sewage	- Sewage will be dealt with by treatment plants following water quality standards .	See Notice1
3. Aircraft noise pollution.	B	-Aircraft noise measures	- As necessary, consider measures against aircraft noise.	
Natural Environment;				
1. Ecological effects.	-	-	-	
2. Erosion of river and beach	-	-	-	
3. Effects on landscape	-	-	-	
All Items of Social Environment	-	-	-	
All Items of Others are the same as Akmola airport.				

* The Evaluation scores ("A", "B","C","-") are the same as those used for Akmola airport.

Notice1:Sewage effluent standards in Japan: 20 mg/l for BOD, 60 mg/l for nitrate, 8 mg/l for Phosphate, 70 mg/l for SS, 3000 numbers/100ml for Coliform.

6) Airport: Karaganda

Check Item	Evaluation*	Point at Issue	Measures & Policy for Management	Remarks
Pollution;				
1. Aquatic organisms, fisheries & other water utilization.	-	-	-	
2. Water pollution caused by sewage and soil erosion.	-	-	-	
3. Aircraft noise pollution.	C	-Aircraft noise	- As necessary, consider measures against aircraft noise.	
Natural Environment;				
1. Ecological effects.	C	-Migratory birds	-As necessary, consider measures regarding the conflict of birds and aircraft.	
2. Erosion of river and beach	-	-	-	
3. Effects on landscape	-	-	-	
All Items of Social Environment	-	-	-	
All Items of Others are the same as Akmola airport.				

* The Evaluation scores ("A", "B","C","-") are the same as those used for Akmola airport.

7) Airport: Kzyl-Orda

Check Item	Evaluation*	Point at Issue	Measures & Policy for Management	Remarks
Pollution;				
1. Aquatic organisms, fisheries & other water utilization.	-	-	-	
2. Water pollution caused by sewage and soil erosion.	-	-	-	
3. Aircraft noise pollution.	-	-	-	
Natural Environment;				
1. Ecological effects.	-	-	-	
2. Erosion of river and beach	-	-	-	
3. Effects on landscape	-	-	-	
All Items of Social Environment	-	-	-	
All Items of Others are the same as Akmola airport.				

* The Evaluation scores ("A", "B","C","-") are the same as those used for Akmola airport.

8) Airport: Aktau

Check Item	Evaluation*	Point at Issue	Measures & Policy for Management	Remarks
Pollution;				
1. Aquatic organisms, fisheries & other water utilization.	-	-	-	
2. Water pollution caused by sewage and soil erosion.	-	-	-	
3. Aircraft noise pollution.	-	-	-	
Natural Environment;				
1. Ecological effects.	C	-Migratory birds	-As necessary, consider measures regarding the conflict of birds and aircraft.	
2. Erosion of river and beach	-	-		
3. Effects on landscape	-	-	-	
			-	
All Items of Social Environment	-	-	-	
All Items of Others are the same as Akmola airport.				

* The Evaluation scores ("A", "B","C","-") are the same as those used for Akmola airport.

9) Airport: Pavlodar

Check Item	Evaluation*	Point at Issue	Measures & Policy for Management	Remarks
Pollution;				
1. Aquatic organisms, fisheries & other water utilization.	-	-	-	
2. Water pollution caused by sewage and soil erosion.	-	-	-	
3. Aircraft noise pollution.	C	-Aircraft noise measures	- As necessary, consider measures against aircraft noise.	
Natural Environment;				
1. Ecological effects.	-	-	-	
2. Erosion of river and beach	-	-	-	
3. Effects on landscape	-	-	-	
All Items of Social Environment	-	-	-	
All Items of Others are the same as Akmola airport.				

* The Evaluation scores ("A", "B","C","-") are the same as those used for Akmola airport.

10) Airport: Uralsk

Check Item	Evaluation*	Point at Issue	Measures & Policy for Management	Remarks
Pollution;				
1. Aquatic organisms, fisheries & other water utilization.	-	-	-	
2. Water pollution caused by sewage and soil erosion.	C	-Treatment of surface water from airport	- Surface water from the airport will be dealt with by treatment plants following water quality standards.	See Notice1
3. Aircraft noise pollution.	C	-Aircraft noise	- As necessary, consider measures against aircraft noise.	
Natural Environment;				
1. Ecological effects.	-	-	-	
2. Erosion of river and beach	-	-	-	
3. Effects on landscape	-	-	-	
All Items of Social Environment	-	-	-	
All Items of Others are the same as Akmola airport.				

* The Evaluation scores ("A", "B","C","-") are the same as those used for Akmola airport.

Notice1: The water quality standards for fisheries in Kazakhstan are 0.02 mg/l for Chrome, 0.1 mg/l for Iron, 0.001 mg/l for Copper, 0.01 mg/l for Zinc(2+:, 0.0001 mg/l for Mercury, 0.05 mg/l for Arsenic, 0.05 mg/l for Oil-Products.

11) Airport: Ust-Kamenogorosk, Balkhash, Kostanay, Semipalatinsk

Check Item	Evaluation*	Point at Issue	Measures & Policy for Management	Remarks
Pollution;				
1. Aquatic organisms, fisheries & other water utilization.	-	-	-	
2. Water pollution caused by sewage and soil erosion.	C	-Treatment of sewage	- Sewage will be dealt with by treatment plants following water quality standards.	See Notice1
3. Aircraft noise pollution.	C	-Aircraft noise measures	- As necessary, consider measures against aircraft noise.	
Natural Environment;				
1. Ecological effects.	C	-Fauna and flora	-Investigation of fauna and flora	
2. Erosion of river and beach	-	-	-	
3. Effects on landscape	-	-	-	
All Items of Social Environment	-	-	-	
All Items of Others are the same as Akmola airport.				

* The Evaluation scores ("A", "B","C","-") are the same as those used for Akmola airport.

Notice1:Sewage effluent standards in Japan: 20 mg/l for BOD, 60 mg/l for nitrate, 8 mg/l for Phosphate, 70 mg/l for SS, 3000 numbers/100ml for Coliform.

Notice2: Information taken from maps.

12) Airport: Alkalyk, Ekibastu, Kokchetau, Petropavlovsk, Zhambul, Zhezkazgan

Check Item	Evaluation*	Point at Issue	Measures & Policy for Management	Remarks
Pollution;				
1. Aquatic organisms, fisheries & other water utilization.	-	-	-	
2. Water pollution caused by sewage and soil erosion.	C	-Treatment of sewage	- Sewage will be dealt with by treatment plants following water quality standards.	See Notice1
3. Aircraft noise pollution.	-	-	-	
Natural Environment;				
1. Ecological effects.	C	-Fauna and flora	-Investigation of fauna and flora	
2. Erosion of river and beach	-	-	-	
3. Effects on landscape	-	-	-	
All Items of Social Environment	-	-	-	
All Items of Others are the same as Akmola airport.				

* The Evaluation scores ("A", "B","C","-") are the same as those used for Akmola airport.
Notice1:Sewage effluent standards in Japan: 20 mg/l for BOD, 60 mg/l for nitrate, 8 mg/l for Phosphate, 70 mg/l for SS, 3000 numbers/100ml for Coliform.
Notice2: Information taken from maps.

13) Airport: Urdzhar, Zaysan

Check Item	Evaluation*	Point at Issue	Measures & Policy for Management	Remarks
Pollution;				
1. Aquatic organisms, fisheries & other water utilization.	C	-Aquatic organisms, water utilization	-As necessary, consider aquatic organisms	
2. Water pollution caused by sewage and soil erosion.	C	-Treatment of sewage	- Sewage will be dealt with by treatment plants following water quality standards.	See Notice1
3. Aircraft noise pollution.	C	-Aircraft noise measures	- As necessary, consider measures against aircraft noise.	
Natural Environment;				
1. Ecological effects.	C	-Fauna and flora	-Investigation of fauna and flora	
2. Erosion of river and beach	-	-	-	
3. Effects on landscape	-	-	-	
All Items of Social Environment	-	-	-	
All Items of Others are the same as Akmola airport.				

* The Evaluation scores ("A", "B","C","-") are the same as those used for Akmola airport.
Notice1:Sewage effluent standards in Japan: 20 mg/l for BOD, 60 mg/l for nitrate, 8 mg/l for Phosphate, 70 mg/l for SS, 3000 numbers/100ml for Coliform.
Notice2: Because there is no information available these airports,the evaluations were based on common sense.

Appendix-5.7.1 (1)

Runway Length Requirement

Airport	2005				2020			
	Assumpted direction	A/C	Assumpted distance (km)	Runway length requirement	Assumpted direction	A/C	Assumpted distance (km)	Runway length requirement
Akmola	-	LJ	-	3,500	-	LJ	-	3,500
Aktau	Almaty	SJ	2,100	2,000	West-Europe	SJ	3,200	2,200
Aktyubinsk	Almaty	SJ	1,700	1,900	Almaty	SJ	1,700	1,900
Almaty	-	LJ	-	3,600	-	LJ	-	3,600
Atyrau	Almaty	SJ	2,000	1,800	Almaty	SJ	2,000	1,800
Karaganda	Russia	SJ	2,400	1,900	West-Asia	SJ	3,600	2,200
Pavlodar	Russia	SJ	3,900	2,700	Russia	SJ	3,900	2,700
Shimkent	Russia	SJ	2,700	2,100	Russia	SJ	2,700	2,100
Ust-Kamenogorsk	Akmola	SJ	800	1,300	Russia	SJ	3,000	2,200

Note

Accordance with charter flight for VIP, following procedure is adapted in case of Akmola and Almaty airport.

1. The basic runway length (Aircraft: Boeing 747SP) 2,670 m
   -Assumption: sea level, 15°C, zero wind, zero R/W gradient
2. The basic runway length was corrected as main report 5.7.2 (3) i.
   -Assumption for the basic R/W length correction:

Airport	Elevation (m)	Temp (°C)
Akmola	353	35.0
Almaty	681	30.8

Appendix-5.7.1 (2) Comparison of Airport Standard

1 Aircraft

ICAO Recommendation

Category	Wing size	Wheel track
	m	m
A	15	4.5
B	15-24	4.5-6
C	24-36	6-9
D	36-52	9-14
E	52-65	9-14

Russian Standard

Index of Plane	Wing size	Wheel track
	m	m
1	24	4
2	24-32	4-6
3	24-32	6-9
4	32-42	9-10.5
5	32-42	10.5-12.5
6	42-60	10.5-14

2 Runway Width

ICAO Recommendation

Reference code		R/W	Shoulder
		m	m
4	D, E	45	7.5 x 2
3	D	45	7.5 x 2
3	A, B, C	30	
2	C	30	
2	A, B	23	
1	C	23	
1	A, B	18	

Russian Standard

Class	R/W+s/d	R/W	Shoulder
	m	m	
A	60	45	7.5 x 2
B1	45	45	
B2	42	42	
C	35	35	
D	28	28	
E	21	21	

3 Overrun Length

ICAO Recommendation

Reference code		Length
		m
4	D, E	60
3	D	60
3	A, B, C	30
2	C	30
2	A, B	23
1	C	23
1	A, B	18

Russian Standard

Class	Length
	m
A	60
B1	60
B2	50
C	50
D	40
E	30

4 Longitudinal Slope

ICAO Recommendation

Code	Average Slope	L/4of end	Max. Slope
4	1.00%	0.80%	1.25%
3	1.00%	0.80%	1.25%
2	2.00%	2.00%	2.00%
1	2.00%	2.00%	2.00%

Note
L means a runway length.

Russian Standard

Class	Average Slope	L/6 of end	Max. Slope
A, B1, B2	1.00%	0.80%	1.25%
C	1.00%	0.80%	1.15%
D	1.00%	1.50%	1.15%
E	1.70%	1.50%	2.00%

Note
L means a runway length.

Comparison of Airport Standard

5 Runway End Safety Area

ICAO Recommendation

Code No.	R/W width	width	length
	m	m	m
3D, 4D, 4E	45	90	90
	30	60	90
1, 2 of instrument R/W	45 30	90 60	90 60

Russian Standard

Class	width	length
		m
A, B, B1, C, D		150
E		120

6 Runway strip Length and each side width

ICAO Recommendation

Code No.	width	length
	m	m
3, 4	150	L+2x 60
3,4 non-instrument 1,2 instrument R/W	75	L+2x 60
2 non-instrument R/W	40	L+2x 60
1 non-instrument R/W	30	L+2x 30

Note
L means runway length

Russian Standard

Class	width	length
	m	m
A,	150	L+2 x75
B, B1,	150	L+2 x 50
C, D	75	L+2 x 30
E	75	L

7 Safety Sideband Width

Russian Standard

Class	width
	m
A, B	60
B1, C	50
D	40
E	30

8 Taxiway Width

ICAO Recommendation

Code	T/W	Shoulder	T/W+s/d
	m	m	m
A	7.5		
B	10.5		
C	15	5.0 x 2	25
D	18	10.0 x 2	38
E	23	10.5 x 2	44

Russian Standard

Class	T/W	Shoulder	T/W+s/d
	m	m	m
E	7		7
D	10		10
C	13		13
B2	17	5.0 x 2	27
B1	19	5.0 x 2	29
A	22.5	9.0 x 2	40.5

Comparison of Airport Standard

9 Taxiway Clearance between Wheel and Edge

ICAO Recommendation

Code	T/W	Clearance
	m	m
A	7.5	1.5
B	10.5	2.25
C	15	3 *1
C	15	4.5 *2
D	18	4.5
E	23	4.5

Note:
*1 Wheel base is less than a 18 m.
*2 Wheel base is equal or greater than a 18 m.

Russian Standard

Class	T/W	Clearance
	m	m
1	7	1.5
2	10	2
3	13	2
4	17	3.25
5	19	3.25
6	22.5	4.25

10 Radius of Curvature at internal Edges of Taxiway

ICAO Recommendation

Code	Radius
A	to be adjusted with fillet
B	
C	
D	
E	

Note
Radius of fillet is decided using figure or formula.

Russian Standard

Code	Radius
	m
E	10
D	20
C	30
B1,B2	50
A	50

11 Clearance to Obstacle at Taxiways

ICAO Recommendation

Code	Clearance
	m
A	16.25
B	21.5
C	26
D	40.5
E	47.5

Russian Standard

Code	Clearance
	m
E	25
D	29.5
C	29.5
B1,B2	38
A	47.5

Comparison of Airport Standard

No	Item	ICAO Recommendation	Russian Standard
12	Minimum Distance between Center Lines of Taxiways		
13	Turning around		

Code	Center L to Center L
	m
A	23.75
B	33.5
C	44
D	66.5
E	80

Code	Center L to Center L
	m
E	38
D	47
C	47
B1,B2	61
A	80

Class		Width
		m
A, B, V	Minimum	75
G, D	Minimum	45

Existing Condition of Pavement

	Airport / Facilities		Almaty	Aktyubinsk	Atyrau	Akmola	Aktau	Karakanda	Pavlodar	Shimkent	U'st-Kamenogorsk
	Runway		4400 x 60	3100 x60	2350 x 44m	2511 x 49	2655 x 45	3300 x 60	2500 x 45	2800 x 44	2500 x 42
	Taxiway		3484 x 18		202 x 18 m	3484 x 18		600 x 22.5	600(?) x 18	3600(?) x 23	3400 (?) x 18 (?)
1	Pavement										
1.1	R/w, T/w	PCN	36/R/B/X/T	20/R/A/X/T	17/R/A/X/T	28/R/B/X/T	36/F/C/Y/T	40/R/A/X/T	14/R/A/X/T	22/R/A/X/T	22/R/A/X/T
	Structure	RC	24 (RC)	24 (RC)	5+8 (AC)	12 (AC)		24 (CC)	20-24 (AC)		
		Concrete	20 (CC)	22 (CC)	14 (RC)	12 (AC)		22 (CC)	22 -24(CC)		
		sand	3 (Sa)		16 (C.stb)	24 (CC)		8 (AG)			
		Base course	15 (MC)	8 (MC)	10 (sand)	35 (SG)		38 (SG)			
		Sub-base	10 (SG)	38 (SG)							
		total	72	92		83		92	42-48		
	Assumed Aircraft		B767-200	F-28	F-28	TU154(55t)	B737-200	B747-100	Tu-154		
			B737-200Adv		Tu164, Tu134	DC9-15,21	DC9-41,51	Tu-154	Il-86		
1.2	Apron	Width x Length		208 x 128		135.2 x560	670 x				
		PCN	20/F/C/Y/T	26/R/A/X/T	26/R/A/X/T	16/R/B/X/T	36/F/C/Y/T	49/R/B/X/T	9/R/A/X/T		
			22/R/C/X/T	15/R/B/Y/T	21/R/A/X/T	22/F/B/Y/T	47/F/C/Y/T	19/R/A/X/T	4/F/B/Z/T		
			45/R/C/X/T		11/F/C/Z/T	27/R/B/X/T	25/F/C/Y/T	23/F/C/Y/T			
			27/R/C/Y/T			23/R/B/X/T	9/F/C/Y/T	19/R/A/X/T			
			62/F/C/Y/T								
			18/F/C/Y/T								
			34/R/C/W/T								
	Structure	RC	28 (RC)	14 (RC)							
		C.Stabi	24 (CC)	16 (CC)							
		sand	3 (SA)								
		Subbase	15 (SG)								
		total	70	30							
		Apron Spots	14-Tu154	4-Tu134	3-An24	3-Tu154	4-Yak40	2-Il86,76	4-An24		
			12-Il86	16-Yak40	2-Tu154	12-An24	6-TU154	9-Tu154	5-Yak-40		
			8-AN24	22-An24	10-Il86	1-Tu134	8-An24	9-Tu134,			
			16-Tu134	4-Tu154		1-Yak40	24-An2	An24			
			8-Yak	2-Il86							
2	Terminal Bldg.		13,722	3,884	2,880	1,050	215	13,500	3,600	1,177	394.4
	Design Pax./hour		1,000	400	200	200	100	1,200	200	200	200
		m2/pax.	13.7	9.7	14.4	5.3	2.2	11.3	18.0	5.9	2.0
3	Control tower	m2	1,612	456	1,403	1,473	94	94	360	883	1488
4	Service premise		152	886	1,271	490	131.3	342.8	329	107	822
5	Fire fighting station		69	115	53	438	94	339	84	120	820
6	Equipment Category		8	7	6	7	6	7	7	6	6
7	Hanger	m2	16,067	-	990	-	-	2,200	-	105	-
8	Fuel Storage	kl	22,000	9,000	9,000	8,000	5,000	10,000	?	7,000	?

Appendix

Akmola Airport Project Cost Estimation (Break Down)

Work Item				Unit	Qut'y	Unit Rate US$	Amount US$	Remarks
I Civil Work	1	Airside						
		1) Earthwork	Excavation	m3	225,129	11.15	2,510,817	
			Embankment	m3	112,564	4.39	494,183	
			Subtotal				3,005,000	
		2) Pavement Work	Runway extension	m2	50,355	66.75	3,361,189	
			R/W Shoulder & Overrun	m2	42,335	31.41	1,329,754	
			R/W overlay	m2	110,740	37.28	4,128,115	
			T/W expansion	m2	10,950	66.75	730,911	
			Taxiway overlay		39,420	37.28	1,469,481	
			Taxiway Shoulder	m2	32,850	31.41	1,031,827	
			Apron overlay	m2	2,000	37.28	74,555	
			A/P expansion	m2	72,900	66.75	4,866,065	
			GSE Road	m2	10,125	31.41	318,029	
			Perimeter Road	m2	63,180	31.41	1,984,501	
			Subtotal				19,294,426	
		3) Miscellaneous	Marking	m2	16,275	3.40	55,335	
			Cable Duct & manhole	l.s	1		800,000	
			Subtotal				855,335	
		Airside Total					23,154,761	
	2	Landside						
		1) Earth Works	Demolition	m3	3,534	35.00	123,690	
			Excavation	m3	17,670	11.15	197,070	
			Subtotal				320,760	
		2) Pavement Work	Road & Carpark	m2	58,900	31.41	1,850,065	
		3) Miscellaneous	Marking & Traffic Sign Board	l.s	1		300,000	
			Fence	m	12,800	100.00	1,280,000	
			Subtotal				1,580,000	
		Landside Total					3,750,825	
		Civil Total					26,905,586	
II Architectural Works								
	1	Passenger Terminal Building		m2	22,600	2,000.00	45,200,000	
	2	Cargo Terminal Building		m2	1,890	1,500.00	2,835,000	
	3	Administration Building & Control Tower		m2	4,000	1,500.00	6,000,000	
	4	Fire Station		m2	1,500	1,700.00	2,550,000	
	5	Main Power Station		m2	1,500	1,000.00	1,500,000	
	6	Boiler Station and cooling station		m2	750	1,000.00	750,000	
	7	Airline office and pilopt training center		m2	350	1,000.00	350,000	
	8	VIP		m2	500	2,000.00	1,000,000	
	9	Hangar		m2	1,200	2,000.00	2,400,000	
	10	Radar Station		m2	100	1,000.00	100,000	
	11	Other building		l.s	1		6,268,500	
		Total Architectural Work					68,953,500	
III Air Navigation Systems								
	1	Air Navigation System		l.s	1		8,000,000	
	2	Airfield Lighting		l.s	1		8,651,207	
	3	Meteorological Observation System		l.s	1		1,450,000	
		Total Air Navigation System					18,101,207	
IV Supporting Facilities								
	1	Power Supply		l.s	1		4,400,000	
	2	Carpark Lighting		l.s	1		500,000	

	3	Sanitary works	Water Supply System	l.s	1		800,000	
			Sewerage System	l.s	1		500,000	
			Solid Waste Disposal	l.s	1		50,000	
		Sub-total					1,350,000	
	4	Cominucation system		l.s	1		1,004,215	
	5	Air-conditioning and Heating system		l.s	1		19,469,027	
	6	Fuel Supply System	hydrant system	l.s	1		15,929,204	Pipeline and pump station
		Total Supporting Facilities		l.s	1		59,749,438	
V Special Equipment								
	1	Conveying System	Dep. Baggage Conveyer	no	3	127,349	382,047	
			Weighing Scale	no	14	20,498	286,972	
			Arr. Baggage Conveyer	no	3	208,947	626,841	
			Spare Parts				38,876	3% of above total
			Subtotal				1,334,736	
	2	Elevator	Elevator	no	2	61,055	122,111	
			Escalator	no	2	161,048	322,096	
			Spare Parts				13,326	3% of above total
			Subtotal				457,533	
	3	Cold Storage	Refrigerator	no	1	13,214	13,214	
			Freezer Room	no	1	3,592	3,592	
			Cargo Weighing Scale	no	2	35,456	70,912	
			Spare Parts				2,632	3% of above total
			Subtotal				90,350	
	4	Boarding Bridge		no	5	750,000	3,750,000	
			Spare Parts				115,289	3% of above total
							3,865,289	
	5	Fire Fighting Car	Major Vehicle	no	3	1,154,274	3,462,822	
			Rapid Intervention	no	1	835,850	835,850	
			Ambulance	no	1	42,015	42,015	
			Command Car	no	1	35,377	35,377	
			Spare Parts	l.s	1		131,282	3% of above total
			Subtotal				4,507,346	
		Maintenance	Grader	no	2	90,973.45	181,947	
		Equipment	Sewege pump	no	3	16,991.15	50,973	
			Storm water drainage pump	no	3	2,123.89	6,372	
			Snow plow	no	2	40,221.24	80,442	
			Lawn mower	no	2	12,233.63	24,467	
			Grass plow	no	2	6,017.70	12,035	
			Road sweeper	no	1	102,345.13	102,345	
			Subtotal				458,582	
		Total Special Equipment					10,255,346	
VI General Preliminary								
	1	Insurance		l.s	1		3,679,302	
	2	Mobil/ Demobilization		l.s	1		5,518,952	
	3	Site Establishment		l.s	1		7,358,603	
	4	Site Establishment (Office)		l.s	1		3,679,302	
		Employers' Housing		l.s	1		3,679,302	
		Vehicle		l.s	1		1,000,000	
	5	Site miscellaneous		l.s	1		5,518,952	
	6	Soil investigation		l.s	1		500,000	
	7	Training		l.s	1		300,000	
	8	Miniature Model		l.s	1		50,000	
	9	Over head		l.s	1		14,717,206	
		Total of General and Preliminary					31,284,412	

Aktau Airport Project Cost Estimation (Break Down)

KZT / US$ = 70.3

Work Item			Unit	Qu'ty	Unit Rate US$	Amount US$	Remarks
I Civil Work	1 Airside						
	1) Earthwork	Excavation	m3	31,925	11.15	356,054	
		Embankment	m3	15,963	4.39	70,079	
		Subtotal				426,133	
	2) Pavement Work	Runway extension	m2	0	66.75	0	
		R/W Shoulder & Overrun	m2	46,950	31.41	1,474,505	
		R/W overlay	m2	124,650	37.28	4,646,645	
		T/W expansion	m2	0	66.75	0	
		Taxiway overlay		10,580	37.28	394,396	
		Taxiway Shoulder	m2	6,900	31.41	216,700	
		Apron overlay	m2	108,000	37.28	4,025,974	
		A/P expansion	m2	0	66.75	0	
		GSE Road	m2	10,000	31.41	314,059	
		Perimeter Road	m2	0		0	
		Subtotal				11,072,280	
	3) Miscellaneous	Marking	m2	15,413	1.01	15,588	
		Cable Duct & manhole	m	300	572.33	171,700	
		Subtotal				187,288	
	Airside Total					11,685,701	
	2 Landside						
	1) Earth Works	Demolition	m3	1,354	10.11	13,695	
		Excavation	m3	6,770	11.15	75,509	
		Subtotal				89,204	
	2) Pavement Work	Road & Carpark	m2	17,360	31.41	545,206	
	3) Miscellaneous	Marking & Traffic Sign Board	l.s	1		330,000	
		Fence	m	11,750	100.00	1,175,000	
		Subtotal				1,505,000	
	Landside Total					2,139,410	
	Civil Total					13,825,111	
II Architectural Works							
	1	Passenger Terminal Building	m2	11,110	1,500.00	16,665,000	
	2	Cargo Terminal Building	m2	1,650	1,000.00	1,650,000	
	3	Administration Building	m2	4,000	1,500.00	6,000,000	Including control tower
	4	Fire Station	m2	1,500	1,200.00	1,800,000	
	5	Main Power Station	m2	1,400	1,000.00	1,400,000	
	6	Boiler Station	m2	200	1,000.00	200,000	
	7	Water Supply Station	m2	200	800.00	160,000	
	8	Incinerator	m2	0	500.00	0	
	9	Hangar	m2	2,500	1,800.00	4,500,000	For two middle jets (B737)
	10	Radar Station	m2	200	800.00	160,000	
	11	Other building	l.s	1		325,350	
	Total Architectural Work					32,860,350	
III Air Navigation Systems							
	1	Air Navigation System	l.s	1		9,656,637	
	2	Airfield Lighting	l.s	1		9,897,345	
	3	Meteorological Observation System	l.s	1		1,444,248	
	Total Air Navigation System					20,998,230	
IV Supporting Facilities							
	1	Power Supply	l.s	1		2,850,000	
	2	Carpark Lighting	l.s	1		420,000	

	3	Sanitary works	Water Supply System	ls	1		1,601,620	
			Sewerage System	ls	1		397,910	
			Solid Waste Disposal	ls	1		21,210	
		Sub-total					2,020,740	
	4	Communication System		ls	1		160,000	
	5	Fuel Supply System		ls	0		0	Existing 3,000 kl > required 1,580 kl
		Total Supporting facilities					5,450,740	
V Special Equipment								
	1	Conveying System	Dep. Baggage Conveyer	no	3	127,349	382,047	
			Weighing Scale	no	14	20,498	286,972	
			Arr. Baggage Conveyer	no	3	208,947	626,841	
			Spare Parts				38,876	3% of above total
			Subtotal				1,334,736	
	2	Elevator	Elevator	no	2	61,055	122,111	
			Escalator	no	3	161,048	483,144	
			Spare Parts				18,158	3% of above total
			Subtotal				623,413	
	3	Cold Storage	Refrigerator	no	2	13,214	26,428	
			Freezer Room	no	2	3,592	7,184	
			Cargo Weighing Scale	no	3	35,456	106,368	
			Spare Parts				4,199	3% of above total
			Subtotal				144,179	
	4	Boarding Bridge		no	3	750,000	2,250,000	
			Spare Parts				71,951	3% of above total
			Subtotal				2,321,951	
	5	Fire Fighting Car	Major Vehicle	no	2	1,154,274	2,308,548	
			Rapid Intervention	no	1	835,850	835,850	
			Ambulance	no	1	42,015	42,015	
			Command Car	no	1	35,377	35,377	
			Spare Parts	ls	1		96,654	3% of above total
			Subtotal				3,318,444	
		Total Special Equipment					7,742,723	
VI General Preliminary								
	1	Insurance		ls	1		808,772	
	2	Mobil/ Demobilization		ls	1		1,617,543	
	3	Site Establishment		ls	1		1,213,157	
	4	Site Establishment (Office)		ls	1		1,213,157	
		Employers' Housing		ls	1		808,772	
		Vehicle		ls	1		960,000	
	5	Site miscellaneous		ls	1		808,772	
	6	Soil investigation		ls	1		200,000	
	7	Training		ls	1		150,000	
	8	Miniature Model		ls	1		50,000	
	9	Over head		ls	1		6,470,172	
		Total of General and Preliminary					14,300,345	

Aktyubinsk Airport Project Cost Estimation (Break Down)

KZT / US$ = 70.3

Work Item			Unit	Qty	Unit Rate US$	Amount US$	Remarks
I Civil Work	1 Airside						
	1) Earthwork	Excavation	m3	43,485	11.15	484,975	
		Embankment	m3	21,742	4.39	95,453	
		Subtotal				580,428	
	2) Pavement Work	Runway extension	m2	0	66.75	0	
		R/W Shoulder & Overrun	m2	100,200	31.41	3,146,867	
		R/W overlay	m2	139,500	37.28	5,200,217	
		T/W expansion	m2	700	66.75	46,725	
		Taxiway overlay	m2	31,500	37.28	1,174,242	
		Taxiway Shoulder	m2	21,000	31.41	659,523	
		Apron overlay	m2	0	37.28	0	
		A/P expansion	m2	81,000	66.75	5,406,738	
		GSE Road	m2	5,000	31.41	157,029	
		Perimeter Road	m2	17,325	31.41	544,107	
		Subtotal				16,335,449	
	3) Miscellaneous	Marking	m2	16,395	1.01	16,582	
		Cable Duct & Manhole	l.s	1	572.33	572	
		Subtotal				17,154	
	Airside Total					16,933,031	
	2 Landside						
	1) Earth Works	Demolition	m3	504	10.11	5,098	
		Excavation	m3	2,520	11.15	28,105	
		Subtotal				33,203	
	2) Pavement Work	Road & Carpark	m2	8,400	31.41	263,809	
	3) Miscellaneous	Marking & Traffic Sign Board	l.s	1		50,000	
		Fence	m	19,850	100.00	1,985,000	
		Subtotal				2,035,000	
	Landside Total					2,332,012	
	Civil Total					**19,265,043**	
II Architectural Works							
	1	Passenger Terminal Building	m2	5,690	2,000.00	11,380,000	
	2	Cargo Terminal Building	m2	640	1,500.00	960,000	
	3	Administration Building	m2	4,000	2,000.00	8,000,000	Including control tower
	4	Fire Station	m2	1,500	1,700.00	2,550,000	
	5	Main Power Station	m2	1,400	1,500.00	2,100,000	
	6	Boiler Station	m2	200	1,500.00	300,000	
	7	Water Supply Station	m2	200	1,500.00	300,000	
	8	Incinerator	m2	150	500.00	75,000	
	9	Hangar	m2	7,200	2,000.00	14,400,000	For two middle jets (B737)
	10	Radar Station	m2	200	1,500.00	300,000	
	11	Other office	l.s	1		4,036,500	
	Total Architectural Work					**44,401,500**	
III Air Navigation Systems							
	1	Air Navigation System	l.s	1		9,996,460	
	2	Airfield Lighting	l.s	1		10,789,381	
	3	Meteorological Observation System	l.s	1		1,444,248	
	Total Air Navigation System					**22,230,088**	
IV Supporting Facilities							
	1	Power Supply	l.s	1		4,672,566	
	2	Carpark Lighting	l.s	1		800,000	

	3	Sanitary works	Water Supply System	l.s	1		800,000	
			Sewerage System	l.s	1		200,000	
			Solid Waste Disposal	l.s	1		10,000	
		Sub-total					1,010,000	
	4	Communication System		l.s	1		160,000	
		Heating and air-conditioning system		l.s	1		3,539,823	
	5	Fuel Supply System	440 kl	l.s	0		0	
		Total Support facilities					**6,642,566**	
V Special Equipment								
	1	Conveying System	Dep. Baggage Conveyer	no	1	127,349	127,349	
			Weighing Scale	no	10	20,498	204,980	
			Arr. Baggage Conveyer	no	2	208,947	417,894	
			Spare Parts				22,507	3% of the above
			Subtotal				772,730	
	2	Elevator	Elevator	no	2	61,055	122,111	
			Escalator	no	3	161,048	483,144	
			Spare Parts				18,158	3% of the above
			Subtotal				623,413	
	3	Cold Storage	Refrigerator	no	2	13,214	26,428	
			Freezer Room	no	2	3,592	7,184	
			Cargo Weighing Scale	no	3	35,456	106,368	
			Spare Parts				4,199	3% of the above
			Subtotal				144,179	
	4	Boarding Bridge		no	3	750,000	2,250,000	
			Spare Parts				71,951	3% of the above
			Subtotal				2,321,951	
	5	Fire Fighting Car	Major Vehicle	no	2	1,154,274	2,308,548	
			Rapid Intervention	no	1	835,850	835,850	
			Ambulance	no	1	42,015	42,015	
			Command Car	no	1	35,377	35,377	
			Spare Parts	l.s	1		96,654	3% of the above
			Subtotal				3,318,444	
		Total Special Equipment					7,180,717	
VI General Preliminary								
	1	Insurance		l.s	1		930,773	
	2	Mobil/ Demobilization		l.s	1		2,792,320	
	3	Site Establishment		l.s	1		2,792,320	
	4	Site Establishment (Office)		l.s	1		930,773	
		Employers' Housing		l.s	1		930,773	
		Vehicle		l.s	1		800,000	
	5	Site miscellaneous		l.s	1		1,396,160	
	6	Soil investigation		l.s	1		500,000	
	7	Training		l.s	1		300,000	
	8	Miniature Model		l.s	1		50,000	
	9	Over Head		l.s	1		7,446,188	
		Total of General and Preliminary					11,423,122	

Almaty Airport Project Cost Estimation (Break Down)

KZT/US$= 70.3

Work Item			Unit	Q'ty	Unit Rate US$	Unit Rate KZT	Combined Amount US$	Combined Amount KZT	Remarks
I Compensation	1) Land acquisition		ha	240	100,000		24,000,000		
	2) Noise pollution		l.s	1			400,000		
	Total						**24,400,000**		
I Civil Work	1 Airside								
	1) Earthwork	Excavation	m3	127,915	11.15		1,426,615		
		Embankment	m3	127,915	4.39		561,577		
		Subtotal					1,988,192		
	2) Pavement Work	Runway extension	m2	0	66.76		0		
		R/W Shoulder & Overrun	m2	0	31.41		0		
		R/W overlay	m2	271,200	37.29		10,111,995		
		T/W expansion	m2	121,550	66.75		8,113,445		
		Taxiway overlay		41,400	37.29		1,543,645		
		Taxiway Shoulder	m2	40,500	31.41		1,271,937		
		A/P expansion	m2	0	66.75		0		
		A/P Overlay	m2	177,500	37.29		6,618,286		
		GSE Road	m2	0	46.98		0		
		Perimeter Road	m2	37,000	46.98		1,738,267		
		Subtotal					29,397,576		
	3) Miscellaneous	Marking	m2	22,763	0.23		5,207		
		Cable Duct & manhole	l.s	1			697,000		
		Subtotal					702,207		
	Airside Total						30,099,782		
	2 Landside								
	1) Earth Works	Demolition	m3	14,504	10.11		146,634		
		Excavation	m3	28,283	11.15		315,433		
		Subtotal					462,066		
	2) Pavement Work	Road & Carpark	m2	72,520	46.98		3,407,004		
	3) Miscellaneous	Marking & Traffic Sign Board	l.s	1			6,000		
		Box culvert	m	1,600	1,849.46		2,959,144		
		Fence	m	14,610	100.00		1,461,000		
		Subtotal					4,426,144		
	Landside Total						8,295,214		
	Civil Total						**38,394,996**		
II Architectural Works									
	1	Passenger Terminal Building	m2	42,470	2,000.00		84,940,000		
	2	Cargo Terminal Building	m2	2,720	1,500.00		4,080,000		
	3	Administration Building	m2	5,000	2,000.00		10,000,000		
	4	Fire Station	m2	2,700	1,700.00		4,590,000		
	5	Main Power Station	m2	300	1,500.00		450,000		
	6	Boiler Station, and heating and airconditioning	m2	400	1,500.00		600,000		
	7	Water Supply Station	m2	300	1,500.00		450,000		
	8	VIP building	m2	500	2,000.00		1,000,000		
	9	Hangar	m2	12,000	2,000.00		24,000,000		
	10	Radar Station	m2	300	1,000.00		300,000		
	11	Other building	l.s	1			1,304,100		
	Total Architectural Work						**131,714,100**		
III Air Navigation Systems									
	1	Air Navigation System	l.s	1			9,982,000		
	2	Airfield Lighting	l.s	1			21,232,000		
	3	Meteorological Observation System	l.s	1			1,444,000		

	Total Air Navigation System						**32,658,000**		
IV Supporting Facilities									
	1 Power Supply		l.s	1			3,115,000		
	2 Carpark Lighting		l.s	1			133,000		
	3 Sanitary works	Water Supply System	l.s	1			2,400,000		
		Sewerage System	l.s	1			800,000		
		Solid Waste Disposal	l.s	1			100,000		
	Sub-total						3,300,000		
	4 Communication System		l.s	1			200,000		
	5 Fuel Supply System		l.s	1			20,000,000		
	Total of supporting Facilities						**3,248,000**		
V Special Equipment									
	1 Conveying System	Dep. Baggage Conveyer	no	9	127,349		1,146,141		
		Weighing Scale	no	84	20,498		1,721,832		
		Arr. Baggage Conveyer	no	9	208,947		1,880,523		
		Spare Parts					142,455		3% of above total
		Subtotal					4,890,951		
	2 Elevator	Elevator	no	6	61,055		366,333		
		Escalator	no	9	161,048		1,449,432		
		Spare Parts					54,473		3% of above total
		Subtotal					1,870,238		
	3 Cold Storage	Refrigerator	no	2	13,214		26,428		
		Freezer Room	no	2	3,592		7,184		
		Cargo Weighing Scale	no	3	35,456		106,368		
		Spare Parts					4,199		3% of above total
		Subtotal					144,179		
	4 Boarding Bridge		no	18	750,000		13,500,000		
		Spare Parts					409,451		3% of above total
		Subtotal					13,909,451		
	5 Fire Fighting Car	Major Vehicle	no	4	1,154,274		4,617,096		
		Rapid Intervention	no	1	835,850		835,850		
		Ambulance	no	1	42,015		42,015		
		Command Car	no	1	35,377		35,377		
		Spare Parts	l.s	1			165,910		3% of above total
		Subtotal					5,696,248		
	Total Special Equipment						**26,511,067**		
VI General Preliminary									
	1 Insurance		l.s	1			2,525,262		
	2 Mobil/ Demobilization		l.s	1			3,787,892		
	3 Site Establishment		l.s	1			5,050,523		
	4 Site Establishment (Office)		l.s	1			1,262,631		
	5 Employers' Housing		l.s	1			2,525,262		
	6 Vehicle		l.s	1			1,000,000		
	7 Site miscellaneous		l.s	1			2,525,262		
	8 Soil investigation		l.s	1			200,000		
	9 Training		l.s	1			150,000		
	10 Miniature Model		l.s	1			50,000		
	11 Over Head		l.s	1			7,575,785		
	Total of General and Preliminary						**26,652,616**		

Atyrau Airport Project Cost Estimation (Break Down)

KZT / US$ = 70.3

Work Item			Unit	Quty	Unit Rate US$	Amount US$	Remarks
I Civil Work	1 Airside						
	1) Earthwork	Excavation	m3	30,034	11.15	334,958	
		Embankment	m3	15,017	4.39	65,927	
		Subtotal				400,885	
	2) Pavement Work	Runway extension	m2	2,470	66.75	164,872	
		R/W Shoulder & Overrun	m2	37,050	31.41	1,163,587	
		R/W overlay	m2	111,150	37.28	4,143,398	
		T/W expansion	m2	2,020	66.75	134,835	
		Taxiway overlay	m2	7,272	37.28	271,082	
		Taxiway Shoulder	m2	3,030	31.41	95,160	
		Apron overlay	m2	80,300	37.28	2,993,386	
		A/P expansion	m2	0	66.75	0	
		GSE Road	m2	5,600	31.41	175,873	
		Perimeter Road	m2	46,200	31.41	1,450,951	
		Subtotal				10,593,144	
	3) Miscellaneous	Marking	m2	14,663	1.01	14,830	
		Cable Duct & manhole	l.s	1	572.33	100,000	
		Subtotal				114,830	
	Airside Total					11,108,859	
	2 Landside						
	1) Earth Works	Demolition	m3	2,352	10.11	23,788	
		Excavation	m3	3,528	11.15	39,347	
		Subtotal				63,136	
	2) Pavement Work	Road & Carpark	m2	11,760	31.41	369,333	
	3) Miscellaneous	Marking & Traffic Sign Board	l.s	1		300,000	
		Fence	m	11,750	100.00	1,175,000	
		Subtotal				1,475,000	
	Landside Total					1,907,469	
	Civil Total					**13,016,328**	
II Architectural Works							
	1	Passenger Terminal Building	m2	7,520	2,000.00	15,040,000	
	2	Cargo Terminal Building	m2	730	1,500.00	1,095,000	
	3	Administration Building	m2	2,400	2,000.00	4,800,000	Including control tower
	4	Fire Station	m2	1,500	1,700.00	2,550,000	
	5	Main Power Station	m2	2,200	1,500.00	3,300,000	
	6	Boiler Station	m2	300	1,500.00	450,000	
	7	Water Supply Station	m2	200	1,500.00	300,000	
	8	Incinerator	m2	0	1,500.00	0	
	9	Hangar	m2	7,200	1,500.00	10,800,000	For two middle jets (B737)
	10	Radar Station	m2	300	1,500.00	450,000	
	11	Other building	l.s	1		3,878,500	
	Total Architectural Work					**42,663,500**	
III Air Navigation Systems							
	1	Air Navigation System	l.s	1		9,656,637	
	2	Airfield Lighting	l.s	1		9,614,159	
	3	Meteorological Observation System	l.s	1		1,444,248	
	Total Air Navigation System					20,715,044	
IV Supporting Facilities							
	1	Power Supply	l.s	1		2,522,124	
	2	Carpark Lighting	l.s	1		371,681	

	3	Sanitary works	Water Supply System	l.s	1		707,965	
			Sewerage System	l.s	1		353,982	
			Solid Waste Disposal	l.s	0		0	
		Sub-total					1,061,947	
	4	Communication System		l.s	1		160,000	
		Heating and air-conditioning system		l.s	1		9,307,318	
	5	Fuel Supply System		l.s	0		0	
		Total of supporting facilities					**13,423,070**	
V Special Equipment								
	1	Conveying System	Dep. Baggage Conveyer	no	1	127,349	127,349	
			Weighing Scale	no	14	20,498	286,972	
			Arr. Baggage Conveyer	no	3	208,947	626,841	
			Spare Parts				31,235	
			Subtotal				1,072,397	
	2	Elevator	Elevator	no	2	61,055	122,111	
			Escalator	no	3	161,048	483,144	
			Spare Parts				18,158	
			Subtotal				623,413	
	3	Cold Storage	Refrigerator	no	1	13,214	13,214	
			Freezer Room	no	1	3,592	3,592	
			Cargo Weighing Scale	no	2	35,456	70,912	
			Spare Parts				2,632	
			Subtotal				90,350	
	4	Boarding Bridge		no	3	750,000	2,250,000	
			Spare Parts				70,289	
			Subtotal				2,320,289	
	5	Fire Fighting Car	Major Vehicle	no	2	1,154,274	2,308,548	
			Rapid Intervention	no	1	835,850	835,850	
			Ambulance	no	1	42,015	42,015	
			Command Car	no	1	35,377	35,377	
			Spare Parts	l.s	1		96,654	
			Subtotal				3,318,444	
		Total Special Equipment					7,424,892	
VI General Preliminary								
	1	Insurance		l.s	1		972,428	
	2	Mobil/ Demobilization		l.s	1		1,458,643	
	3	Site Establishment		l.s	1		1,166,914	
	4	Site Establishment (Office)		l.s	1		972,428	
		Employers' Housing		l.s	1		1,458,643	
		Vehicle		l.s	1		800,000	
	5	Site miscellaneous		l.s	1		972,428	
	6	Soil investigation		l.s	1		200,000	
	7	Training		l.s	1		150,000	
	8	Miniature Model		l.s	1		50,000	
	9	Over head		l.s	1		7,779,427	
		Total of General and Preliminary					**15,980,911**	

Karakanda Airport Project Cost Estimation (Break Down)

KZT / US$ = 70.3

Work Item			Unit	Qutv	Unit Rate US$	Amount US$	Remarks
I Civil Work	1 Airside						
	1) Earthwork	Excavation	m3	3,881	11.15	43,268	
		Embankment	m3	1,940	4.39	8,518	
		Subtotal				51,785	
	2) Pavement Work	Runway extension	m2	0	66.75	0	
		R/W Shoulder & Overrun	m2	0	31.38	0	
		R/W overlay	m2	0	37.28	0	
		T/W expansion	m2	650	66.75	43,387	
		Taxiway overlay		29,250	37.28	1,090,368	
		Taxiway Shoulder	m2	9,750	31.38	305,973	
		Apron overlay	m2	93,975	37.28	3,503,157	
		A/P expansion	m2	0	66.75	0	
		GSE Road	m2	0	31.38	0	
		Perimeter Road	m2	0	31.38	0	
		Subtotal				4,942,885	
	3) Miscellaneous	Marking	m2	16,875	3.40	57,375	
		Cable Duct & manhole	m			800,000	
		Subtotal				857,375	
	Airside Total					5,852,045	
	2 Landside						
	1) Earth Works	Demolition	m3	1,180	35.00	41,317	
		Excavation	m3	5,902	11.15	65,812	
		Subtotal				107,129	
	2) Pavement Work	Road & carpark	m2	17,360	31.38	544,788	
	3) Miscellaneous	Marking & Traffic Sign Board	m2			300,000	
		Fence	m	0	100.00	0	
		Subtotal				300,000	
	Landside Total					951,917	
	Civil Total					6,803,962	
II Architectural Works							
	1	Passenger Terminal Building	m2	11,130	0.00	0	
	2	Cargo Terminal Building	m2	700	0.00	0	
	3	Administration Building	m2	4,000	0.00	0	Including control tower
	4	Fire Station	m2	1,750	0.00	0	
	5	Main Power Station	m2	2,400	0.00	0	
	6	Boiler Station	m2	300	0.00	0	
	7	Water Supply Staion	m2	300	0.00	0	
	8	Incinirator	m2	200	0.00	0	
	9	Hangar	m2	7,200	0.00	0	For two middle jets (B737)
	10	Radar Station	m2	300	0.00	0	
	11	Other building	m2	1		0	
	Total Architectural Work					0	
III Air Navigation Systems							
	1	Air Navigation System	l.s	1		558,600	
	2	Airfield Lighting	l.s	1		641,617	
	3	Meteorogical Observation System	l.s	1		290,000	
	Total Air Navigation System					1,490,217	
IV Supporting Facilities							
	1	Power Supply	l.s	1		855,000	
	2	Carpark Lighting	l.s	1		400,000	
	3	Sanitary works	Water Supply System	l.s	1		0 enough; Existing 1,200 ton > Required 300 kl
			Sewerage System	l.s	1		0 enough; Existing 10,000 kl > Required 970 ton

		Solid Waste Disposal	l.s	1		100,000	
	Sub-total					100,000	
4	Communication System		l.s	1		160,000	
5	V Fuel Supply System		l.s	1		0	enough; Existing 10,000 kl > Required 970 kl
	Total of supporting facilities					1,515,000	
V Special Equipment							
1	Conveying System	Dep. Baggage Conveter	no	3	127,349	382,047	
		Weighing Scale	no	14	20,498	286,972	
		Arr. Baggage Conveyer	no	3	208,947	626,841	
		Spare Parts				38,876	3% of above total
		Subtotal				1,334,736	
2	Elevator	Elavator	no	2	61,055	122,111	
		Escarator	no	3	161,048	483,144	
		Spare Parts				18,158	3% of above total
		Subtotal				623,413	
3	Cold Storage	Refrigerator	no	2	13,214	26,428	
		Freezer Room	no	2	3,592	7,184	
		Cargo Weighing Scale	no	3	35,456	106,368	
		Spare Parts				4,199	3% of above total
		Subtotal				144,179	
4	Boarding Bridge		no	3	750,000	2,250,000	
		Spare Parts				71,951	3% of above total
		Subtotal				2,321,951	
5	Fire Fighting Car	Major Vehicle	no	2	1,154,274	2,308,548	
		Rapid Intervantion	no	1	835,850	835,850	
		Ambulance	no	1	42,015	42,015	
		Command Car	no	1	35,377	35,377	
		Spare Parts	l.s	1		96,654	3% of above total
		Subtotal				3,318,444	
	Total Special Equipment					7,742,723	
VI General Preliminary							
1	Insurance		l.s	1		175,519	
2	Mobil/ Demobilization		l.s	1		438,798	
3	Site Establishment		l.s	1		351,038	
4	Site Establishment (Office)		l.s	1		175,519	
	Emplyers' Housing		l.s	1		351,038	
	Vehicle		l.s	1		600,000	
5	Site miscellaneous		l.s	1		263,279	
6	Soil investigation		l.s	1		500,000	
7	Training		l.s	1		300,000	
8	Miniture Model		l.s	1		50,000	
9	Over head		l.s	1		526,557	
	Total of General and Preliminary					3,205,190	

Pavlodar Airport Project Cost Estimation (Break Down)

KZT / US$ = 70.3

Work Item			Unit	Q'ty	Unit Rate US$	Amount US$	Remarks
I Civil Work	1 Airside						
	1) Earthwork	Excavation	m3	29,052	11.15	324,006	
		Embankment	m3	14,526	4.39	63,771	
		Subtotal				387,777	
	2) Pavement Work	Runway extension	m2	9,000	66.75	600,749	
		R/W Shoulder & Overrun	m2	45,000	31.41	1,413,264	
		R/W overlay	m2	112,560	37.28	4,195,960	
		T/W expansion	m2	1,800	66.75	120,150	
		Taxiway overlay	m2	6,480	37.28	241,558	
		Taxiway Shoulder	m2	5,400	31.41	169,592	
		Apron overlay	m2	7,000	37.28	260,943	
		A/P expansion	m2	30,000	66.75	2,002,496	
		GSE Road	m2	6,000	31.41	188,435	
		Perimeter Road	m2	4,245	31.41	133,318	
		Subtotal				9,326,464	
	3) Miscellaneous	Marking	m2	15,450	1.01	15,626	
		Fence	m	11,630	572.33	800,000	
		Subtotal				815,626	
	Airside Total					10,529,867	
	2 Landside						
	1) Earth Works	Demolition	m3	823	10.11	8,326	
		Excavation	m3	4,116	11.15	45,905	
		Subtotal				54,231	
	2) Pavement Work	Road & Carpark	m2	13,720	31.41	0	
	3) Miscellaneous	Marking & Traffic Sign Board	l.s	1		30,000	
		Fence	m	11,630	100.00	1,163,000	
		Subtotal				1,193,000	
	Landside Total					1,247,231	
	Civil Total					**11,777,098**	
II Architectural Works							
	1	Passenger Terminal Building	m2	8,750	2,000.00	17,500,000	
	2	Cargo Terminal Building	m2	670	1,500.00	1,005,000	
	3	Administration Building	m2	4,000	2,000.00	8,000,000	Including control tower
	4	Fire Station	m2	1,500	1,700.00	2,550,000	
	5	Main Power Station	m2	1,400	1,500.00	2,100,000	
	6	Boiler Station	m2	200	1,500.00	300,000	
	7	Water Supply Station	m2	200	1,500.00	300,000	
	8	Incinerator	m2	100	1,500.00	150,000	
	9	Hangar	m2	7,200	1,500.00	10,800,000	For two middle jets (B737)
	10	Radar Station	m2	200	1,500.00	300,000	
	11	Other building	m2	1		430,050	
	Total Architectural Work					**43,435,050**	
III Air Navigation Systems							
	1	Air Navigation System	l.s	1		9,656,637	
	2	Airfield Lighting	l.s	1		9,897,345	
	3	Meteorological Observation System	l.s	1		1,444,248	
	Total Air Navigation System					**20,998,230**	
IV Supporting Facilities							
	1	Power Supply	l.s	1		2,850,000	
	2	Carpark Lighting	l.s	1		420,000	

	3 Sanitary works	Water Supply System	l.s	1		0	enough; Existing 12,000 ton > Required 250 ton
		Sewerage System	l.s	1		0	enough; Existing 12,000 ton > Required 250 ton
		Solid Waste Disposal	l.s	1		100,000	
	Sub-total					100,000	
	4 Communication System		l.s	1		160,000	
	5 Fuel Supply System		l.s	0		0	enough; Existing 10,000 kl > Required 1,020 kl
	Total of supporting Facilities					**3,530,000**	
V Special Equipment							
	1 Conveying System	Dep. Baggage Conveyer	no	2	127,349	254,698	
		Weighing Scale	no	9	20,498	184,482	
		Arr. Baggage Conveyer	no	2	208,947	417,894	
		Spare Parts	l.s	1		25,712	3% of above total
		Subtotal				882,786	
	2 Elevator	Elevator	no	2	61,055	122,111	
		Escalator	no	2	161,048	322,096	
		Spare Parts	l.s	1		13,326	3% of above total
		Subtotal				457,533	
	3 Cold Storage	Refrigerator	no	1	13,214	13,214	
		Freezer Room	no	1	3,592	3,592	
		Cargo Weighing Scale	no	2	35,456	70,912	
		Spare Parts	l.s	1		2,632	3% of above total
		Subtotal				90,350	
	4 Boarding Bridge		no	4	750,000	3,000,000	
		Spare Parts	l.s	1		92,789	3% of above total
		Subtotal				3,092,789	
	5 Fire Fighting Car	Major Vehicle	no	2	1,154,274	2,308,548	
		Rapid Intervention	no	1	835,850	835,850	
		Ambulance	no	1	42,015	42,015	
		Command Car	no	1	35,377	35,377	
		Spare Parts	l.s	1		96,654	3% of above total
		Subtotal				3,318,444	
	Total Special Equipment					**7,841,902**	
VI General Preliminary							
	1 Insurance		l.s	1		875,823	
	2 Mobil/ Demobilization		l.s	1		1,313,734	
	3 Site Establishment		l.s	1		1,050,987	
	4 Site Establishment (Office)		l.s	1		1,050,987	
	Employers' Housing		l.s	1		1,576,481	
	Vehicle		l.s	1		1,000,000	
	5 Site miscellaneous		l.s	1		1,313,734	
	6 Soil investigation		l.s	1		500,000	
	7 Training		l.s	1		300,000	
	8 Miniature Model		l.s	1		50,000	
	9 Over head		l.s	1		7,006,582	
	Total of General and Preliminary					**9,031,747**	

Shimkent Airport Project Cost Estimation (Break Down)

Work Item			Unit	Quty	Unit Rate US$	Amount US$	Remarks
I Civil Work	1 Airside						
	1) Earthwork	Excavation	m3	82,091	11.15	915,540	
		Embankment	m3	41,045	4.39	180,198	
		Subtotal				1,095,738	
	2) Pavement Work	Runway extension	m2	13,500	66.75	901,123	
		R/W Shoulder & Overrun	m2	28,160	31.41	884,513	
		R/W overlay	m2	125,440	37.28	4,676,095	
		T/W expansion	m2	40,250	66.75	2,686,682	
		Taxiway overlay		50,370	37.28	1,877,670	
		Taxiway Shoulder	m2	32,850	31.41	1,031,827	
		Apron overlay	m2	93,975	66.75	6,272,818	
		A/P expansion	m2	40,500	37.28	1,509,740	
		GSE Road	m2	20,000	31.41	628,205	
		Perimeter Road	m2	4,125	31.41	129,567	
		Subtotal				20,598,241	
	3) Miscellaneous	Marking	m2	16,275	1.01	16,460	
		Cable Duct & manhole	l.s	1		800,000	
		Subtotal				816,460	
	Airside Total					22,510,439	
	2 Landside						
	1) Earth Works	Demolition	m3	958	10.11	9,685	
		Excavation	m3	4,788	11.15	53,400	
		Subtotal				63,085	
	2) Pavement Work	Road & carpark	m2	15,960	31.41	501,308	
	3) Miscellaneous	Marking & Traffic Sign Board	l.s	1		300,000	
		Fence	m	12,800	100.00	1,280,000	
		Subtotal				1,580,000	
	Landside Total					2,144,393	
	Civil Total					24,654,832	
II Architectural Works							
	1	Passenger Terminal Building	m2	10,140	2,000.00	20,280,000	
	2	Cargo Terminal Building	m2	740	1,500.00	1,110,000	
	3	Administration Building & Control Tower	m2	4,000	2,000.00	8,000,000	
	4	Fire Station	m2	2,700	1,700.00	4,590,000	
	5	Main Power Station	m2	2,200	1,500.00	3,300,000	
	6	Boiler Station	m2	200	1,500.00	300,000	
	7	Water Supply Station	m2	0	1,500.00	0	
	8	Incinerator	m2	0	1,000.00	0	
	9	Hangar	m2	11,200	2,000.00	22,400,000	For two large jets (B747-400)
	10	Radar Station	m2	200	1,500.00	300,000	
	11	Other building	l.s	1		602,800	
	Total Architectural Work					60,882,800	
III Air Navigation Systems							
	1	Air Navigation System	l.s	1		6,000,000	
	2	Airfield Lighting	l.s	1		4,685,467	
	3	Meteorological Observation System	l.s	1		1,450,000	
	Total Air Navigation System					12,135,467	
IV Supporting Facilities							
	1	Power Supply	l.s	1		2,850,000	
	2	Carpark Lighting	l.s	1		420,000	

	3	Sanitary works	Water Supply System	l.s	0		0	enough
			Sewerage System	l.s	0		0	enough
			Solid Waste Disposal	l.s	0		0	
		Sub-total					0	
	4	Communication System		l.s	1		160,000	
	5	Heating and air-conditioning system		l.s	0		0	
	6	Fuel Supply System		l.s	1		0	enough
		Total Supporting Facilities		l.s	1		3,430,000	
V Special Equipment								
	1	Conveying System	Dep. Baggage Conveyer	no	3	127,349	382,047	
			Weighing Scale	no	14	20,498	286,972	
			Arr. Baggage Conveyer	no	3	208,947	626,841	
			Spare Parts				38,876	3% of above total
			Subtotal				1,334,736	
	2	Elevator	Elevator	no	2	61,055	122,111	
			Escalator	no	3	161,048	483,144	
			Spare Parts				18,158	3% of above total
			Subtotal				623,413	
	3	Cold Storage	Refrigerator	no	1	13,214	13,214	
				no	1	3,592	3,592	
			Cargo Weighing Scale	no	2	35,456	70,912	
			Spare Parts				2,632	3% of above total
			Subtotal				90,350	
	4	Boarding Bridge		no	3	750,000	2,250,000	
			Spare Parts				70,289	3% of above total
							2,320,289	
	5	Fire Fighting Car	Major Vehicle	no	2	1,154,274	2,308,548	
			Rapid Intervention	no	1	835,850	835,850	
			Ambulance	no	1	42,015	42,015	
			Command Car	no	1	35,377	35,377	
			Spare Parts	l.s	1		96,654	3% of above total
			Subtotal				3,318,444	
		Total Special Equipment					7,687,231	
VI General Preliminary								
	1	Insurance		l.s	1		1,087,903	
	2	Mobil/ Demobilization		l.s	1		1,631,855	
	3	Site Establishment		l.s	1		2,175,807	
	4	Site Establishment (Office)		l.s	1		1,087,903	
		Employers' Housing		l.s	1		2,175,807	
		Vehicle		l.s	1		1,000,000	
	5	Site miscellaneous		l.s	1		1,631,855	
	6	Soil investigation		l.s	1		500,000	
	7	Training		l.s	1		300,000	
	8	Miniature Model		l.s	1		50,000	
	9	Over head		l.s	1		8,703,226	
		Total of General and Preliminary					20,344,356	

U'st-Kamenogorsk Airport Project Cost Estimation (Break Down) KZT / US$ = 70.3

Work Item			Unit	Q'ty	Unit Rate US$	Amount US$	Remarks
I Civil Work	1 Airside						
	1) Earthwork	Excavation	m3	56,336	11.15	628,299	
		Embankment	m3	28,168	4.39	123,663	
		Subtotal				751,962	
	2) Pavement Work	Runway extension	m2	7,680	66.75	512,639	
		R/W Shoulder & Overrun	m2	39,300	31.41	1,234,424	
		R/W overlay	m2	110,040	37.28	4,102,020	
		T/W expansion	m2	16,500	66.75	1,101,373	
		Taxiway overlay		59,400	37.28	2,214,286	
		Taxiway Shoulder	m2	49,500	31.41	1,554,590	
		Apron overlay	m2	100,000	66.75	6,674,986	
		A/P expansion	m2	20,250	37.28	754,870	
		GSE Road	m2	6,000	46.98	281,881	
		Perimeter Road	m2	4,125	46.98	193,793	
		Subtotal				18,624,862	
	3) Miscellaneous	Marking	m2	15,000	0.23	3,431	
		Cable Duct & manhole	l.s	1		800,000	
		Subtotal				803,431	
	Airside Total					20,180,255	
	2 Landside						
	1) Earth Works	Demolition	m3	1,042	10.11	10,530	
		Excavation	m3	1,562	11.15	17,425	
		Subtotal				27,956	
	2) Pavement Work	Road & Carpark	m2	5,208	46.98	244,673	
	3) Miscellaneous	Marking & Traffic Sign Board	l.s	1		300,000	
		Fence	m	13,800	100.00	1,380,000	
		Subtotal				1,680,000	
	Landside Total					1,952,628	
	Civil Total					22,132,884	
II Architectural Works							
	1	Passenger Terminal Building	m2	6,820	2,000.00	13,640,000	
	2	Cargo Terminal Building	m2	770	1,500.00	1,155,000	
	3	Administration Building & Control Tower	m2	4,000	2,000.00	8,000,000	
	4	Fire Station	m2	2,700	1,700.00	4,590,000	
	5	Main Power Station	m2	2,200	1,500.00	3,300,000	
	6	Boiler Station	m2	200	1,500.00	300,000	
	7	Water Supply Station	m2	300	1,500.00	450,000	
	8	Incinerator	m2	200	1,500.00	300,000	
	9	Hangar	m2	11,200	2,000.00	22,400,000	For two large jets (B747-400)
	10	Radar Station	m2	200	1,500.00	300,000	
	11	Other building	l.s	1		544,350	
	Total Architectural Work					54,979,350	
III Air Navigation Systems							
	1	Air Navigation System	l.s	1		6,000,000	
	2	Airfield Lighting	l.s	1		4,494,847	
	3	Meteorological Observation System	l.s	1		1,450,000	
	Total Air Navigation System					11,944,847	
IV Supporting Facilities							
	1	Power Supply	l.s	1		2,850,000	
	2	Carpark Lighting	l.s	1		420,000	
	3	Sanitary works	Water Supply System	l.s	0		0 enough
			Sewerage System	l.s	0		0 enough

		Solid Waste Disposal	l.s	1		50,000	
	Sub-total					50,000	
4	Communication System		l.s	1		160,000	
5	Fuel Supply System		l.s	0		0	enough
	Total 'Supporting Facilities					**3,480,000**	
V Special Equipment							
1	Conveying System	Dep. Baggage Conveyer	no	3	127,349	382,047	
		Weighing Scale	no	14	20,498	286,972	
		Arr. Baggage Conveyer	no	3	208,947	626,841	
		Spare Parts				38,876	3% of above total
		Subtotal				1,334,736	
2	Elevator	Elevator	no	2	61,055	122,111	
		Escalator	no	3	161,048	483,144	
		Spare Parts				18,158	3% of above total
		Subtotal				623,413	
3	Cold Storage	Refrigerator	no	1	13,214	13,214	
		Freezer Room	no	2	3,592	7,184	
		Cargo Weighing Scale	no	2	35,456	70,912	
		Spare Parts				2,739	3% of above total
		Subtotal				94,049	
4	Boarding Bridge		no	3	750,000	2,250,000	
		Spare Parts				70,404	3% of above total
						2,320,404	
5	Fire Fighting Car	Major Vehicle	no	2	1,154,274	2,308,548	
		Rapid Intervention	no	1	835,850	835,850	
		Ambulance	no	1	42,015	42,015	
		Command Car	no	1	35,377	35,377	
		Spare Parts	l.s	1		96,654	3% of above total
		Subtotal				3,318,444	
	Total Special Equipment					**7,691,045**	
VI General Preliminary							
1	Insurance		l.s	1		1,002,281	
2	Mobil/ Demobilization		l.s	1		1,503,422	
3	Site Establishment		l.s	1		2,004,563	
4	Site Establishment (Office)		l.s	1		1,002,281	
	Employers' Housing		l.s	1		2,004,563	
	Vehicle		l.s	1		800,000	
5	Site miscellaneous		l.s	1		1,503,422	
6	Soil investigation		l.s	1		500,000	
7	Training		l.s	1		300,000	
8	Miniature Model		l.s	1		50,000	
9	Over head		l.s	1		8,018,250	
	Total of General and Preliminary					18,688,781	