3.18 Air Traffic Control System in Uzbekistan

3.18.1 General

(1) Air Navigation System in Uzbekistan

The air navigation system in Uzbekistan mainly comprise of four (4) VOR/DMEs, twenty (20) NDBs. ASR./SSRs are also installed at several airports as well as Tashkent Airport for approach control and en-route control.

(2) Authority of Air Traffic Control

Air Traffic Control (ATC) services of the civil aviation sector in Uzbekistan is being provided by "Uzaeronavigatsia"(UZAERO) under NAC organization. UZAERO has approx. 1,450 staffs including 110 controllers and 300 engineers at Tashkent airport and local airports.

ATC services are provided along flight routes, at airports and within the limits of the FIRs (Flight Information Regions) of the Republic of Uzbekistan and those adjacent states, that have signed bi-lateral agreements regarding the airspace use.

(3) Regulations

ATC services is made based on the code of "РУКОВОДСТВО", which was approved by Directorate of NAC, No.36 dated January 23, 1996 and the following ICAO documents:

- Annex2 Rules of the Air
- Annex11 Air Traffic Services
- Doc. 4444 Procedures for Air Navigation Services - Rules of the Air and Air Traffic Services(PANS-RAC)
- Doc. 8168 Procedures for Air Navigation Services - Aircraft Operations(PANS-OPS)
- Doc 7030 Regional Supplementary Procedures

(4) Objectives of the Air Traffic Control Services

The objectives of ATC services defined in the provision of the code of ATC, are as follows:

a) prevention of clash between aircraft;

b) prevention of clashes between aircraft which are located on the spot for maneuvering with obstacles on the spot;

c) acceleration and support to the line-up flow of air traffic;

d) provision of advice and information, needed for rendering safe and efficient operation of flights;

e) notification of the relevant authorities on aircraft that need emergency-rescuing services and provision of the necessary assistance to them.

(5) Type of Services

The types of air traffic control services, except military airports, provided in Uzbekistan are as follows:

a) Flight Information Service (FIS) and Alerting Service (ALRS)

b) Area Control Center (ACC)

c) Aerodrome Control(TWR)

d) Aerodrome Flight Information Service(AFIS)

e) Automatic Terminal Information Service(ATIS) at certain aerodroms.

(6) Controlled Airspace and Area

a) Flight Information Region (FIR)

There are three (3) Flight Information Regions designated in Uzbekistan in accordance with ICAO regulations, which are Tashkent FIR, Samarkand FIR and Nukus FIR

b) Control Area and Control Zones

Terminal Control Areas and Control Zones are designated at important civil airports in Uzbekistan. The shape of Terminal Control Area(TMA) or Control zone(CTR) is not uniform, and the altitude of TMA or CTR is different to each other

c) Classification of Airspace

In Uzbekistan, Air Traffic Services airspace classification is not applicable.

d) Required Navigation Performance(RNP)

In Uzbekistan, RNP is not specified.

(7) Classification of ATC Specialists

ATC specialists are responsible for strict observation of requirements of the Air Code of Republic of Uzbekistan, Flight Rules in civil aviation of Uzbekistan, Guidelines on service for air traffic services, job descriptions and other documents that lay a legal basis for ATC according to:

- Criminal Code of the Republic of Uzbekistan
- Code of the Republic of Uzbekistan on administrative responsibility

Main requirements to professionals to be involved in civil aviation air traffic, there are the following requirements to ATC specialists:

- State of citizenship of Republic of Uzbekistan.
- Citizen of other countries can be employed for ATC service, based on the existing international agreements ICAO, (or MAK)
- Minimum of 18 years of age
- Health status in conformity with established requirements
- Requirements towards qualifications needed
- Availability of diplomas(certificates) on graduation of education institutions, training centers and special courses of civil aviation on program of professional training for ATC specialists.
- Availability of the effective certificate(license) of the ATC controller

(8) Structure of Civil Aviation Services

Structure of civil aviation services is of two levels:

- State "Uzaeronavigatsia" center
- Territorial level - territorial divisions of center on ATC

"Uzaeronavigatsia" center defines general guidance of ATC authorities, agrees activities on rational and efficient air space use with interested institutions and ministries, formulates principles and methods of ATC, provision, functioning, development and upgrading the integral ATC system.

3.18.2 Air Space Structure

(1) Area of Air Traffic Control Service

- along airways(AWY)
- in terminal control areas(TMA)
- in aerodrome control zone(CTR)

(2) Area Control Centers(ACC) provide ATC services along:

- airways
- including those parts of the airway that trace through TMAs
- beyond the area of responsibility of the ATC units of the affected aerodrome

(3) Air space organization

Air space of Uzbekistan is divided into ACC, aerodrome area and aero-junctions:

- Air routes and special zones for aircraft flights
- Area of non-monitored flights
- Prohibited areas and restricted areas, polygon areas, areas of explosive activities and others.

These can be divided into sectors both in the plane and in the height. Borders of ATC areas(zones) are set by the commander of air navy of the Republic of Uzbekistan. Take-off and landing areas include:

- Sector of landing approach
- Climb sector
- Circle flights area
- Two lower layers of expectation area(zone)
- Zone of low altitude flights for class-4 aircraft and helicopters

Air corridors in aerodrome area are set with respect to configuration of air routes network, that pass through aerodrome, geographical distribution of air traffic direction. Components of air space structure are developed, set and altered in accordance with the Posture on air space use of the Republic of Uzbekistan.

(4) Border Level of dividing air space in vertical

Air space in vertical reckoning is divided into lower and upper ones. Border between those

two is primarily set at 4,500m from the level of respective atmosphere pressure of 760mm of mercury column(1013.2mmb)

3.18.3 Air Route Structure

Air routes of the Republic of Uzbekistan and order of using them are developed by the head-quarter of Air Navy in cooperation with "Uzaeronavigatsia" center with due consideration of interests of any one involved. List of air routes is made effective by the Order of the commander in chief of the Air Navy of the Republic of Uzbekistan.

Flights by foreign aircraft are carried out on international air routes. List of international air routes(ATS routes), as well as data, required for execution of flights on those routes are published in compliments on aeronautical information(AIP).

Use of the air space in the Republic of Uzbekistan can be restricted or fully prohibited by the establishment or restriction and prohibition zones. Type of restrictions, their expiring periods and categories of ranked officials authorized to set restrictions are regulated by the Posture on air space use in the Republic of Uzbekistan.

Along the state border in air space above land and water territories of the Republic of Uzbekistan, except areas, especially underscored in the Posture the borderline strip is set. In air space of the borderline strip no flights are to take place, except the cases, foreseen by the Posture on air space use.

Air route is classified to Air route or route outside air route, and the air route is divided into International Air Route and Local air route. Order of use of air routes of Uzbekistan is established according to the Posture on air space use in Uzbekistan and other special documents of IS/ASU (Integrated System of Air Space Use).

Air routes will begin to operate in accordance with the list of Uzbekistan air routes, approved by the order of the commander in chief of Air Navy of Uzbekistan and allowed for use by aviation administration of Uzbekistan after certification(licensing, rather).

The list for each air route will indicate layers assigned for flights within its sections and width of the route. Uzbekistan air routes' structure will be approved by the relevant authorities of the Defense Ministry in the order, defined by the Posture on air space use in Uzbekistan.

For ATC areas that have intensive air traffic and large number of intersections of air routes it will be reasonable to set up routes with one-side traffic.

When new air routes are established, they try to avoid prohibition zone. Setting new and reorganization of the old network of air routes will be done.

For air routes, local air routes and routes outside air routes they establish a semi-circle system of vertical layer-making for flights. Flights on air route will mostly take place according to Flight Rules on assigned layers by the QNH(Mean sea level altimeter setting).

Routes of Uzbekistan designated for flights by supersonic aircraft are set on then height of 12,100m or above, as a rule with 20km width. Vertical layers would extend to 1km each.

Longitudinal and side layering for flights on routes is carried out according to Requirement Flight Rules-95. Regulations for longitudinal and side layering will depend on availability or lack of radar monitoring, characteristics of pilotage-navigation complex of the aircraft, aircraft speed, applicable flight rules and other factors.

Organization of ATC on international air routes has a number of peculiarities: they involve crossing the state border of Uzbekistan

- Aircraft of foreign companies, using the same air routes as aircraft of civil aviation of Uzbekistan can differ vastly from the latter in terms of their operational-technical features.

Preparatory work of ATC organization for international routes will include the important activity:

- Additional training and preparation of specialists of traffic service to be able to conduct radio-communication in English, familiarization with operational-technical features of foreign aircraft, rules, forms and method of ATC, recommended by ICAO and applicable abroad.

3.18.4 Air Traffic Control Services

(1) Kind of Service in ATC

In Uzbekistan, the following services of Air traffic Control are provided in the portion of air space and at the civil parts of airport:

- En-route Control Service(ACC)
- Approach Control Service(Aerodrome)
- Aerodrome Control Service(Aerodrome)
- Radar Control Service(ACC and Aerodrome)
- PAR Approach Control Service(Aerodrome)

(2) Composition of ATC Authorities at Aerodrome

For ATC Services at aerodromes, NAC provides the following officials:

- Supervisor of airport flights(RPA)
- Circle controller(DPK)
- Landing controller(PDP)
- Starter controller(SDP)
- Taxiing controller(DPR)

(3) Classification of Air Traffic Control(ATC)

ATC is classified in respect of control areas as follows:

- ATC for routes
- Out of route ATC
- ATC for local air routes
- ATC in aerodrome area

(4) Minimum Flight Altitude

Aircraft shall not be flown below the minimum flight altitude except when necessary for take-off and landing. Minimum flight altitude is determined as the minimum safe height at which neither an unnecessary noise disturbance nor unnecessary hazard to persons and property. In Uzbekistan, the minimum flight altitude is at least 300m(1000ft) above the highest obstacle within a radius of 50 km over cities, other density populated areas and assemblies of person, and elsewhere at least 150m(500ft) above ground or water.

(5) Minimum Vertical Obstacle Clearances

The minimum vertical obstacle clearance for IFR is contained as follows:

Table 3.18.1 Minimum Vertical Obstacle Clearance

Air speed(true) (km/h)	Minimum Vertical obstacle clearance (m)
in aeronautical control zone(CTR)	
300 and less (when circling to land)	300
more than 300 (when circling to land)	300
in approach areas, along airways, local air routes and established routes	
a) in plain and hilly areas and over water	
300 and less	600
301 - 550	600
more than 550	600
b) in mountainous areas	
550 and less	900
more than 550	900

(6) Width of Air Route

The width of an air route is considered to determine the calculation of the minimum obstacle clearance for IFR flight above the highest natural and man-made obstacle, and designated as follows:

a) Aerodrome Control Zone

- within 10 km on each side of the center line of the route.

b) Terminal Control Area

on arrival and departure procedures and established routes;

- within 25 km on each side of the center line of the route without radar monitoring
- within 10 km on each side of the center line of the route, with radar monitoring is available.

c) On Airways

local air routes and established routes(outside the TMA)

- within 25 km on each side of the center line of the route.

3.18.5 Radar Service

Radar service is provided to aircraft in order to meet operational requirement. The providing bodies of Radar service with using call sign are follows:

- ACC(area control centers) "CONTROL"
- APP(approach control offices) "APPROACH"
- TWR(circuit control offices) "KRUG"
- TWR(landing control offices) "TOWER"

It seems that Aerodrome radar and En-route radar are set together at some of the civil airports. Radar control service is provided only along airways and in TMAs and CTRs, so air space for radar control service is slightly limited. Services includes radar monitoring of arriving, departing and en-route traffic to provide information on any significant deviation from normal

flight path and others as follows;

- radar vectoring(if necessary)
- assistance to aircraft in emergency
- warning and presentation of information on location of other aircraft considered to constitute a hazard
- information to assist in the navigation of aircraft
- information on observed weather and hazardous phenomena

Radar and radio failure procedures are defined and published. Actions by the crew in the event of two-way communication failure are published. Secondary Surveillance Radar(SSR) Procedures are defined and published including emergency procedures and unlawful interference procedures.

Horizontal radar separation is applicable both IFR and VFR flight and defined as either longitudinal or lateral value.

(1) Longitudinal Separation

a) Minimum intervals of longitudinal separation under VFR

- on the same route at the same altitude
  - not less than 2 km
- while crossing a level occupied by another aircraft
  - at least 2 km ; within a speed of 300 km/h
  - at least 5 km ; at speeds of more than 300 km/h

b) Minimum intervals of longitudinal separation maintained under IFR with continuous radar monitoring

- on airways at the same flight level - 30 km
- in the approach area - 20 km
- in the approach area using automated ATC systems - 10 km
- in CTRs
  - 10 km for all aircraft that follow aircraft with a certified take-off mass of 136 tones and more.
  - 5 km for all other cases
- when crossing the same direction flight level(altitude) occupied by another aircraft
  - 30 km at the moment of crossing (observing 10 km lateral separation)
- when crossing the same direction flight level(altitude) occupied by another aircraft
  - 20 km in the approach area using automated ATC system
  - 10 km at the moment of crossing
- between aircraft on crossing tracks(with angles of crossing of not less than 70°) at the same flight level(altitude)
  - 40 km at the moment of crossing

(2) Lateral Separation

Minimum intervals of lateral separation in the RADAR Service are designated as follows:

- while flying at the same altitude under VFR shall before divergent routes - 5 km
- when overtaking an aircraft from the right hand side(while circling the airfield under VFR) - 500 m
- under continuous radar monitoring when crossing the flight level(altitude) occupied by the same direction traffic
  - 10 km at the moment of crossing(within the airway, corridor)
- when crossing the flight level(altitude) occupied by the opposite direction traffic
  - 10 km at the moment of crossing(within the airway, corridor, observing 30 km longitudinal separation)

(3) Minimum Safe Intervals at Take-off and Landing Area.

Minimum safe intervals in take-off and landing area are defined so as to consider the wake-turbulence as follows:

- 10 km - for all aircraft, that follow the aircraft with 136 tons and above certified take-off weight.
- 5 km - for all other cases

Minimum safe time-measured intervals for take-off from one RWY or parallel RWYs, distance between centerlines of which is less than 1000m are set as follows:

- 3 minutes - for light aircraft behind medium or heavy aircraft, and for medium aircraft behind large aircraft
- 2 minutes - for medium or heavy aircraft behind heavy aircraft
- 1 minute for all other cases.

Minimum safe time-measured intervals for landing from one RWY or parallel RWYs, distance between centerlines of which is less than 1000m are set as follows:

- 3 minutes - for light aircrafts behind medium or heavy aircrafts
- 2 minutes - for medium or heavy aircrafts behind heavy aircrafts
- 1 minute for all other cases.

Minimum safe time-measured intervals between aircraft take-off and landing is set as follows:

- for flights from one RWY or parallel RWYs, distance between centerlines of which is 1000m or more - 45 seconds
- for flights from parallel RWYs, distance between centerlines of which is more than 1000m - 30 seconds.

3.18.6 Air Traffic Flow management and Air Traffic Planing

Air space planning is divided into the following kinds:

- Preliminary
- Daily(for the next 24 hours)

- Current

Preliminary air space planning is conducted during period of compiling timetables of aircraft and making amendments to those by the NAC aircraft traffic planning authorities. Daily air space use planning for traffic will take place on the eve of flights and its' essence is making a note on load on air space elements, ATC sectors and airports. Current air space use planning will be done by ATC authorities during the process of execution of flights with the aim to amend program of aircraft in ATC areas(zones).

The services of an air traffic control management unit(ATFMU) are provided by the Center for Co-ordination of the Airspace Usage in Tashkent, which is governed by ICAO regulations and Co-ordinates the international flights along the ATS routes of the Republic of Uzbekistan. The following measures, separate or combined can be taken by the ATFMU:

a) Slot time allocation for departing and overflying aircraft (time priority sequence)

b) Slot time allocation for arriving aircraft (time priority sequence)

c) Application of selective measures for arriving aircraft in the periods of reduced visibility

d) assignment of alternate routes or rerouting

3.18.7 Personnel

The number of traffic service specialists for different controller points will be defined by Regulation of "Uzaeronavigatsia" for territorial departments, taking into consideration the need of keeping 10% of additional stand-by controllers.

For the most congested ACC and Controller points there will be a possibility of simultaneous operation at one console for two controllers and if need be, one operator could well be seated there too.

Organization of labor and recreation of ATC personnel is regulated by general postures of the Legislation of the Republic of Uzbekistan on labor as well as by special regulations' acts by "Uzaeronavigatsia" center.

In civil aviation traffic service, at ATC controller points activities are conducted in shifts. Schedule of shifts' operational hours are determined based on local condition upon agreement with local trade union organization.

- Shifts of civil sector of the Main Center of Integrated System of Air Space Use (MC of IS ASU) are based chief of the Main Center.
- Shifts of civil sector of area center of IS ASU are based by RPR(ATC Chief)
- Shifts of controller points of aerodrome area are based by RPA(ATC Chief).

Work of each shift should be organized, if all specialists are available for all controller points. Controllers will be fixed in shifts according to decrees by "Uzaeronavigatsia" center director. Organization and monitoring of activities of shifts will be conducted by chiefs of territorial departments, centers and points.

CHAPTER 4

MASTER PLAN FOR AIR TRANSPORTATION FACILITY DEVELOPMENT

CHAPTER 4 MASTER PLAN FOR AIR TRANSPORTATION FACILITY DEVELOPMENT

4.1 Socio-Economic Framework

4.1.1 General

The socio-economic framework of Uzbekistan is the fundamental element to consider in forecasting the air traffic demand in Uzbekistan. In general, there are many factors which affect the air traffic demand. A simple procedure is preferable for the extended long-term forecasting of air traffic demand. Among the various factors, the GDP (Gross Domestic Product) is singled out as the index for air traffic demand forecast, because GDP covers the entire spectrum of the national and regional economic activities.

The future GDP level of Uzbekistan are forecast by multiplying the estimated future GDP per capita with volume of the future population together.

The items to be reviewed are limited to the population of Uzbekistan and its GDP, the provincial population, and worldwide population and its GDP, because the available data are limited. (the provincial GDP is not available, so that only the population data for the provinces can be reviewed.)

Demand forecasting is made at five year intervals from year 2000 to 2020.

4.1.2 Population

(1) Population of Uzbekistan

The recent growth of the population of Uzbekistan (refer to **Table 2.1.4**) shows a steady upward trend since 1980, and has remained unaffected by the economic recession due to independence of Uzbekistan.

The future population (refer to **Fig. 4.1.1**) is predicted through the following procedure, using the "World Population Projections '94/95" estimated by the World Bank from a worldwide macro-scopic view point.

a) Firstly, the decrease ratios of the average population growth in Uzbekistan is analyzed at five year intervals, using the average annual growth rates of the estimated population of Uzbekistan shown in "World Population Projections '94/95" (refer to **Table 4.1.1**).

b) Next, the future population growth rates in Uzbekistan are obtained by multiplying the past average annual growth rate of the population of Uzbekistan over the last five years (1991 - 1996) with the above decreasing ratios at five year intervals.

c) Finally, the future population of Uzbekistan is projected by applying each of the above future population growth rates at five year intervals to the volume of the actual population in 1996.

The results for the future population level of Uzbekistan are shown in **Table 4.1.2**.

(2) Provincial Population

The recent growth of the provincial population (including the Republic of Karakalpakstan) also shows a steady upward trend similar the national population. However, there are some different growth rates among the provinces (refer to **Table 2.1.4**). The future provincial

population is predicted by the following procedure, considering the above predicted national population level as the control total (refer to **Fig. 4.1.2**).

a) Based on the past data for the actual provincial population from 1980 to 1996, the tentative levels of the provincial population are estimated by a simple regression model, using the calendar year as the explanatory variable,.

b) The levels of the national population are adjusted by the composition rates of the above-mentioned tentative provincial population levels, and finally the future population volumes by province are predicted.

The results for future volumes for provincial population are shown in **Table 4.1.3**.

(3) Worldwide Population

The projected levels of the world's population should be taken as being those presented in "World Population Projections '94/95" published by World Bank (refer to **Table 4.1. 4**).

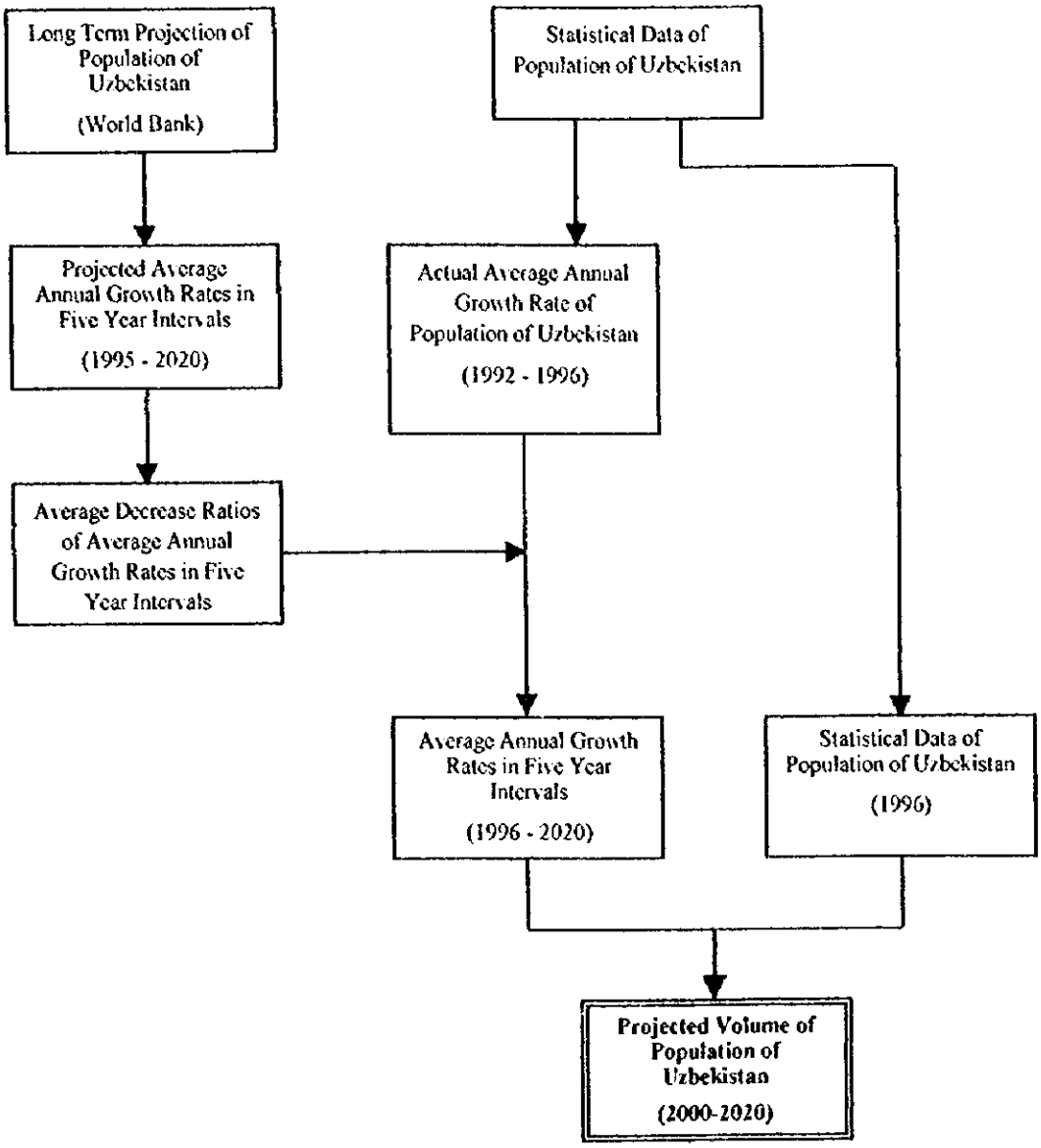


Fig. 4.1.1 Flow Diagram for Forecasting of Future Population of Uzbekistan

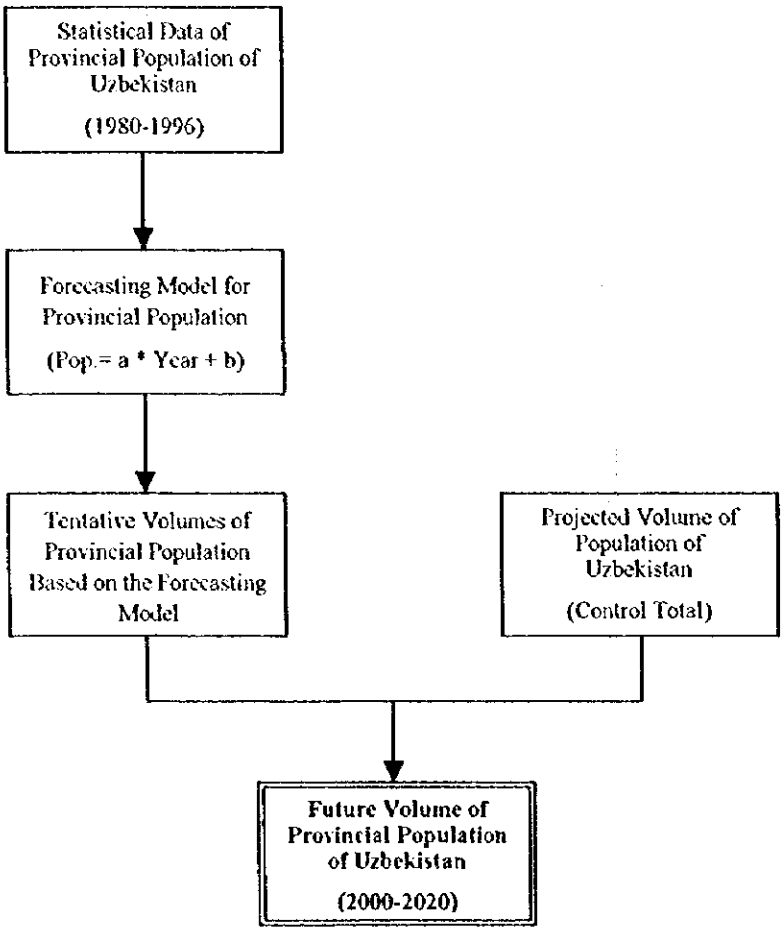


Fig. 4.1.2 Flow Diagram for Forecasting of Future Provincial Population of Uzbekistan

Table 4.1.1 Estimate of Population by World Bank

Year	Population ('000)	Growth Rate (%/year)	Decrease Ratio of Growth Rate
1990	20,515	--	--
1995	23,028	2.34	--
2000	25,617	2.15	0.92
2005	28,333	2.04	0.95
2010	31,101	1.88	0.92
2015	33,805	1.68	0.89
2020	36,293	1.43	0.85

Source: World Bank, (Note: "0.9" was adopted as the average decrease ratio of the growth rate)

Table 4.1.2 Forecast of Population in Uzbeksitan

	Year	Population ('000)	Growth Rate (%/year)	Decrease Ratio of Growth Ratio
Actual	1991	20,708	--	--
	1996	23,007	2.13	--
Forecast	2000	24,821	1.92	0.90
	2005	27,035	1.72	0.90
	2010	29,198	1.55	0.90
	2015	31,294	1.40	0.90
	2020	33,310	1.26	0.90

Table 4.13 Forecast of Provincial Population

Province	Actual ('000)		Forecast ('000)					Remarks
	1991	1996	2000	2005	2010	2015	2020	(Forecasting Model)
Karakalpakstan	1,273.8	1,418.1	1,550.5	1,700.7	1,847.5	1,990.0	2,127.3	Population = 31.19 * Year -60824.4
Andizhan	1,795.1	2,040.3	2,176.1	2,371.9	2,563.2	2,748.6	2,927.0	Population = 40.77 * Year -79364.4
Bukhara	1,199.6	1,339.9	1,448.5	1,584.6	1,717.6	1,846.6	1,970.9	Population = 28.3 * Year -55137.5
Djizhak	780.0	891.1	987.4	1,100.8	1,212.0	1,320.2	1,424.8	Population = 23.45 * Year -45909.4
Kashkadarya	1,697.7	1,975.2	2,163.4	2,412.6	2,656.8	2,894.4	3,124.0	Population = 51.5 * Year -100828.1
Navoi	684.9	748.2	816.9	889.6	960.6	1,029.3	1,095.5	Population = 15.14 * Year -29451
Namangan	1,557.8	1,786.4	1,928.3	2,124.6	2,316.6	2,503.1	2,683.0	Population = 40.7 * Year -79467.9
Samarkand	2,209.7	2,488.6	2,660.4	2,898.1	3,130.3	3,355.4	3,571.8	Population = 49.51 * Year -96343.2
Surkhandarya	1,335.9	1,582.4	1,718.4	1,918.8	2,115.2	2,306.3	2,491.0	Population = 41.4 * Year -81067.2
Sirdarya	580.3	633.9	679.7	732.0	783.1	832.4	879.7	Population = 10.97 * Year -21251.5
Tashkent (*)	4,298.5	4,377.7	4,698.2	4,943.0	5,179.7	5,406.1	5,620.4	Population = 52.22 * Year -99730.7
Fergana	2,226.4	2,499.5	2,664.2	2,891.7	3,113.8	3,328.9	3,535.6	Population = 47.46 * Year -92252.2
Khorezm	1,068.5	1,225.9	1,328.9	1,466.6	1,601.5	1,732.4	1,858.8	Population = 28.55 * Year -55770.7
Total	20,708.2	23,007.2	24,820.9	27,035.0	29,197.9	31,293.8	33,309.8	Control Total

Table 4.1.4 Estimate of World Population by World Bank

Year	Population ('000)	Growth Rate (%/year)
1990	5,281,551	--
1995	5,690,783	1.50
2000	6,113,680	1.44
2005	6,527,767	1.32
2010	6,944,433	1.25
2015	7,348,279	1.14
2020	7,742,124	1.05

4.1.3 Gross Domestic Product (GDP)

(1) GDP values in Uzbekistan

GDP values in Uzbekistan, converted into the real prices at 1996 rates in Sum currency, dropped down apparently at the independence from USSR, and continued to decrease gradually. But, GDP in Uzbekistan slightly recovered in 1996 (refer to **Table 4.1.5**). It seems that the GDP in 1995 was the bottom of the decrease, and thereafter the GDP values have continued to increase thereafter.

Decrease of GDP since 1991 is considered to be caused due to the socio-economic confusion after the independence, and it may be difficult to analyze a regression model regarding the said GDP decrease.

Therefore, it is considered that the future GDP growth will follow the same trend before the independence showing the potential for the stable economic growth.

The future GDP is predicted for Uzbekistan through the following three case studies (refer to **Fig. 4.1.3**).

a) Case – 1

The actual GDP values per capita are analyzed through the simple regression model from 1973 to 1990 using the calendar year as the explanatory variable.

After obtaining the average increase of GDP values per capita, the future GDP values per capita are calculated on the basis of the actual data of 1996, and finally the future GDP values are predicted, multiplying the future GDP values per capita and aforementioned futures volume of population.

b) Case - 2

The actual GDP values per capita are analyzed through the simple repression model from 1973 to 1990, using the calendar year as the explanatory variable, as same as Case-1. After obtaining the average increase rate of GDP values per capita, the future GDP values per capita are calculated on the basis of the actual data of 1996, and finally the future GDP values are predicted, multiplying the future GDP value per capita and the aforementioned future volumes of population.

c) Case - 3

The actual GDP values per capita are analyzed through the simple regression model from 1973 to 1990, using the calendar year as the explanatory variable, as same as Case-1. The calculated figure of GDP in 1996 is obtained on the basis of the past trend up to 1990. The difference between the actual figure and the calculated figure of 1996 is considered as the constant figure..

The future GDP is obtained by deducting the constant figure from the future GDP values based on the simple regression model.

The results of the future GDP in Uzbekistan are shown in **Table 4.1.**.

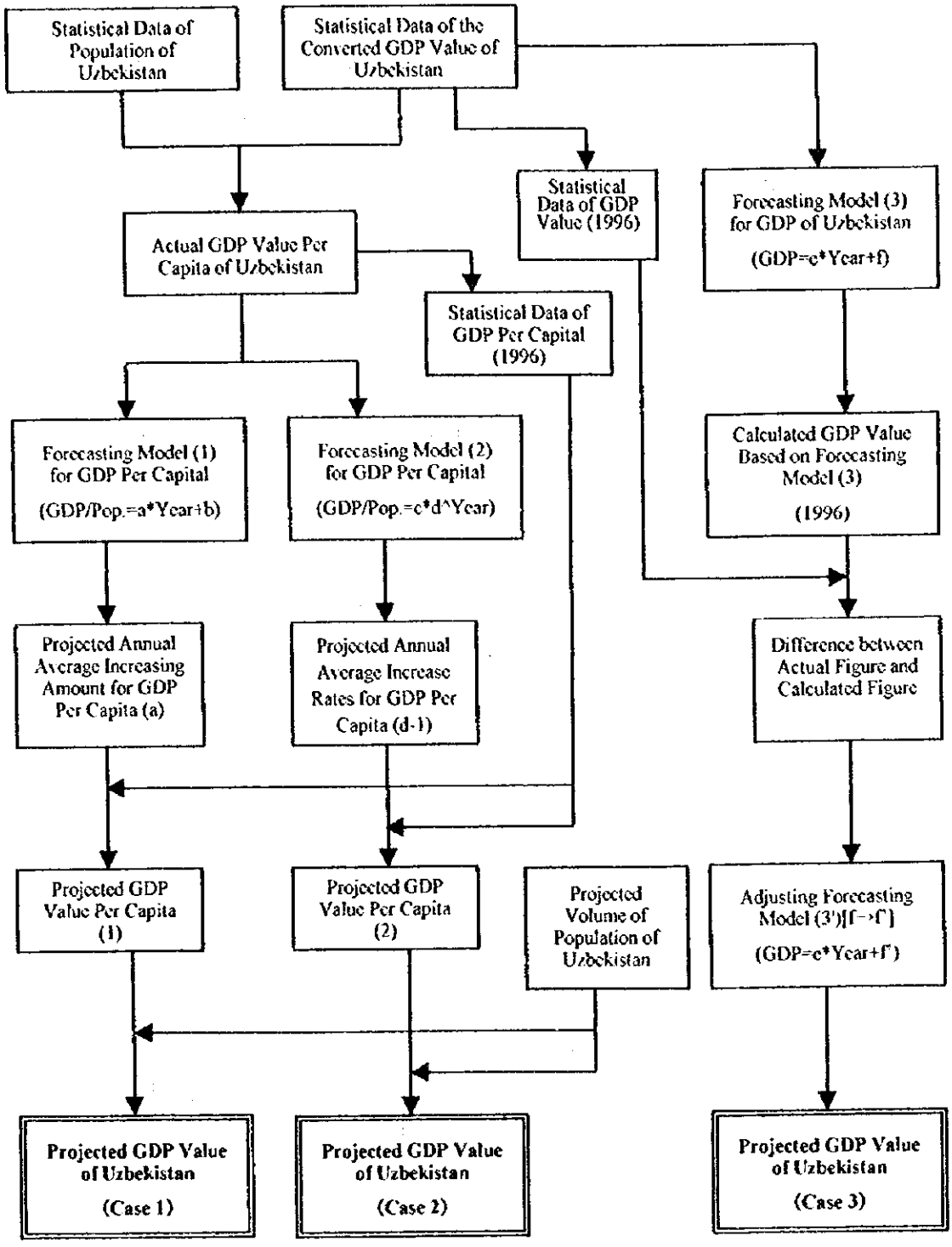


Fig. 4.1.3 Flow Diagram for Forecasting of Future GDP Values in Uzbekistan

Table 4.1.5 Estimate of Gross Domestic Product (GDP)

Year	GDP (1996 converted real price) (*)			GDP per capita		
	Value (bil Sums)	Growth Rate (%/year)	Variation (bil Sums)	Value (thou Sums)	Growth Rate (%/year)	Variation (thou Sums)
1980	470.5	--	--	29.86	--	--
1981	493.9	4.97	23.4	30.59	2.44	0.73
1982	521.8	5.66	27.9	31.49	2.94	0.90
1983	544.8	4.41	23.0	32.02	1.71	0.54
1984	544.0	-0.16	-0.8	31.15	-2.72	-0.87
1985	575.3	5.76	31.3	32.09	3.02	0.94
1986	583.7	1.46	8.4	31.68	-1.27	-0.41
1987	588.7	0.86	5.0	31.09	-1.87	-0.59
1988	642.3	9.10	53.6	33.06	6.33	1.97
1989	661.9	3.05	19.6	33.29	0.71	0.23
1990	674.6	1.93	12.8	33.20	-0.29	-0.10
1991	671.3	-0.50	-3.4	32.42	-2.35	-0.78
1992	596.8	-11.10	-74.5	28.14	-13.19	-4.28
1993	582.4	-2.40	-14.3	26.84	-4.63	-1.30
1994	558.0	-4.20	-24.5	25.14	-6.31	-1.69
1995	551.3	-1.20	-6.7	24.43	-2.82	-0.71
1996	560.1	1.60	8.8	24.34	-0.36	-0.09

(*) : including the estimated value by using data of World Bank

note : (1) forecast model " GDP per capita=0.529*year-1018.42 " was analyzed from variation of GDP per capita.
based on this model, "0.53" was applied as annual increase value of GDP per capita (Case 1)

(2) forecast model " GDP per capita=10^-23.27*1.029^year" was analyzed from growth rate of GDP per capita.
based on this model, "0.03" was applied as annual increase ratio of GDP per capita (Case 2)

(3) forecast model " GDP=13.788*year-26802.21 " was analyzed from value of GDP.
in considering the difference between actual GDP and estimate GDP by the model in 1996, the constant was modified from "-26802.21" to "-26960.37" (Case 3)

Table 4.1.6 Forecast of Gross Domestic Product (GDP)

(1987 converted real price)

Year	Case 1		Case 2		Case 3	
	GDP (bil Sums)	Growth Rate (%/year)	GDP (bil Sums)	Growth Rate (%/year)	GDP (bil Sums)	Growth Rate (%/year)
2000	656.9	4.06	680.1	4.97	615.3	2.38
2005	787.1	3.68	858.7	4.78	684.2	2.15
2010	927.5	3.34	1,075.2	4.60	753.1	1.94
2015	1,077.0	3.03	1,335.9	4.44	822.1	1.77
2020	1,234.6	2.77	1,648.4	4.29	891.0	1.62

(2) GDP of the World

The actual GDP values for the world show a stable upward trend, with a little fluctuation according to the World Bank data (refer to **Table 4.1.7**).

It can therefore be assumed that the same upward trend will continue in the future. The future GDP for the world is predicted in the following three case studies, using a similar analysis procedure to that used for the GDP of Uzbekistan (refer to **Fig. 4.1.4**).

a) Case - A

The actual GDP values per capita are analyzed by means of a simple regression model using the calendar year as the explanatory variable. After obtaining the future GDP values per capita, the future GDP values are predicted by multiplying the GDP values per capita with the above future population level.

b) Case - B

The actual GDP values per capita are analyzed on the basis of a growth rate model, using the calendar year as the explanatory variable. After obtaining the future GDP values per capita the future GDP values are predicted by multiplying the GDP values per capita with the above future population level.

c) Case - C

The actual GDP values are analyzed on the basis of simple regression model using the calendar year as the explanatory variable. The future GDP values are predicted with this model.

The results of the future GDP for the world are shown in **Table 4.1.8**.

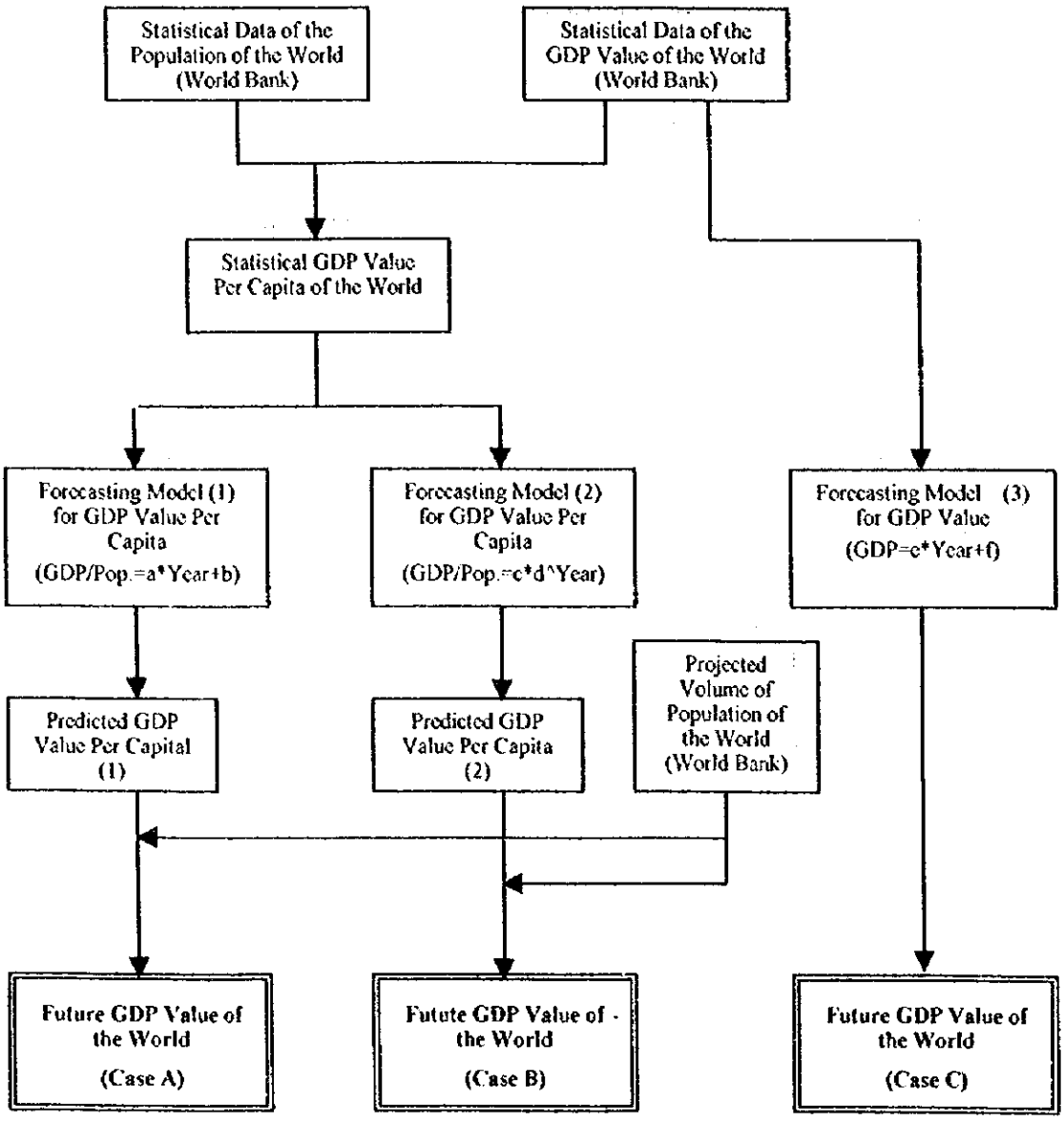


Fig. 4.1.4 Flow Diagram for Forecasting of Future GDP Values of the World

Table 4.1.7 Estimate of World GDP

Year	GDP (1987 real price)			GDP per capita		
	Value (mil US$)	Growth Rate (%/year)	Variation (mil US$)	Value (thou US$)	Growth Rate (%/year)	Variation (thou US$)
1980	13,365,279	--	--	3.00	--	--
1981	13,583,153	1.63	217,874	3.00	-0.09	-0.00
1982	13,633,054	0.37	49,901	2.95	-1.38	-0.01
1983	14,047,410	3.04	414,356	2.99	1.28	0.04
1984	14,685,903	4.55	638,493	3.08	2.81	0.08
1985	15,170,147	3.30	484,244	3.12	1.58	0.05
1986	15,626,482	3.01	456,335	3.16	1.29	0.04
1987	16,171,944	3.49	545,462	3.22	1.72	0.05
1988	16,890,665	4.44	718,721	3.31	2.68	0.09
1989	17,452,272	3.32	561,607	3.36	1.64	0.05
1990	17,826,912	2.15	374,640	3.38	0.46	0.02
1991	17,959,231	0.74	132,319	3.35	-0.83	-0.03
1992	18,184,770	1.26	225,539	3.34	-0.27	-0.01
1993	18,483,539	1.64	298,769	3.34	0.15	0.01
1994	19,051,900	3.07	568,361	3.40	1.59	0.05
1995	19,460,428	2.14	408,528	3.42	0.68	0.02
1996	19,868,956	2.10	408,528	3.44	0.67	0.02

source : World Bank

note : (1) forecast model " GDP per capita=0.035*year-65.67 " was analyzed from variation of GDP per capita (Case A)

(2) forecast model " GDP per capita=10^9.28*year^1.011 " was analyzed from growth rate of GDP per capita (Case B)

(3) forecast model " GDP=408527.7*year-795552.4 " was analyzed from value of GDP (Case C)

Table 4.1.8 Forecast of World GDP

(1987 real price)

Year	Case A		Case B		Case C	
	GDP (mil US$)	Growth Rate (%/year)	GDP (bil Sums)	Growth Rate (%/year)	GDP (bil Sums)	Growth Rate (%/year)
2000	22,362,730	3.00	22,691,364	3.38	21,503,067	2.00
2005	25,008,769	2.26	25,641,375	2.47	23,545,705	1.83
2010	27,808,673	2.15	28,869,031	2.40	25,588,344	1.68
2015	30,699,451	2.00	32,329,562	2.29	27,630,983	1.55
2020	33,686,701	1.87	36,048,987	2.20	29,673,621	1.44

4.2 Air Traffic Demand Forecast

4.2.1 General

Air traffic demand is one of the fundamental parameters for master planning for air transportation development in Uzbekistan. Forecasting of air traffic demand is made with respect to the twelve study airports selected beforehand.

The elements of air traffic demands to be forecast are shown as follows;

a) Air Passenger Demand
   - Domestic services
   - Services for CIS and Baltic States
   - Other international services

b) Air Cargo Demand
   - Domestic services
   - Services for CIS and Baltic States
   - The other international services

c) Aircraft Movement
   - Domestic services
   - Services for CIS and Baltic States (including freighters)
   - The other international services (including freighters)

The air routes between Uzbekistan and CIS/Baltic States are separated from the international air routes as another category, because, the present immigration procedures at Tashkent airport are different from the procedure for other international services and practically of a the semi-domestic nature.

The air routes connecting with the CIS/Baltic States are called hereinafter "Inter-CIS service", and the air routes for the other international flight services are called "International services" in this study.

The air traffic demand forecast is made in terms of Uzbekistan as a whole, and the demand figures for Uzbekistan are then distributed to each of the airports and air routes accordingly. Therefore, air traffic demand forecast is made with respect to the airports and air routes.

Considering the present situation, that is the air route network, fleet and aircraft movements, the air-routes are to be opened on the basis of the minimum requirements for scheduled flight operation.

4.2.2 Premises of Air Traffic Demand Forecast

(1) Target Year

The year 2005 and 2020 are the target years for master planning. However, the demand forecast is to be made from 2000 to 2020 at five year intervals, considering the construction phasing..

(2) Case Studied

The following case studies are for air traffic demand forecasting.

a) Case - 1

The air traffic demand is forecast from the future GDP calculated as Case - 1. This demand is called "Medium Case".

The GDP values for the world in Case - A is adopted as a Medium Case for the demand forecast of the international service.

b) Case - 2

The air traffic demand is forecast from the future GDP calculated as Case - 2. This demand is called "High Case".

The GDP of the world in Case - B is adopted as a High Case for the demand forecast for the international services.

c) Case - 3

The air traffic demand is forecast from the future GDP calculated as Case - 3. This demand is called "Low Case".

The GDP of the world in Case - C is adopted as Low Case for the demand forecast of the international services.

(3) Zoning of Uzbekistan and Foreign Countries

a) Domestic Services

For the purpose of the air traffic demand, Uzbekistan is divided into eleven zones[*1] which are composed of Republic of Karakalpakstan, and ten provinces excluded Djizhak Province and Sirdaria Province[*2].

*1 City of Tashkent is included in the Tashkent Province.

*2 Djizhak airport located at Djizhak Province is excluded for the demand forecasting because no scheduled flight services are provided. The air traffic demand at Djizhak Province is therefore divided into the surrounding Tashkent Province and Samarkand Province, at fifty percent each. Furthermore, the demand at Sirdaria Province is shifted to the surrounding Tashkent Province due to the absence of airport operation in Sirdaria Province.

For forecasting the domestic services, Uzbekistan is divided into seventeen zones,[*3] corresponding to seventeen airports.[*4] These are composed of the twelve study airports and additional five airports (Sarassiva, Shakhrisyabz, Uchkuduk, Sadafshan and Turtkul) connecting with Tashkent airport for the scheduled flights.

*3 The areas surrounding to the airport such as a city, town and district, are considered as the main source of air traffic demand for the airport.

*4 Three airports (Sergli, Djizhak and Muinak) among twenty airports are excluded for the demand forecasting because of no scheduled flight services.

The eleven airports located in their respective zones basically handle the demand for inter-CIS and the other international air routes. In case of a shortfall of minimum requirements for scheduled flight operation, the demand in the relevant area is to be shifted and added to the demand of the area until reaching the requirements are met. Finally, the Tashkent airport demand, if there is still a shortfall. The following conceptual chart shows the shift for grouping of insufficient demand to a zone (refer to **Fig. 4.2.1**).

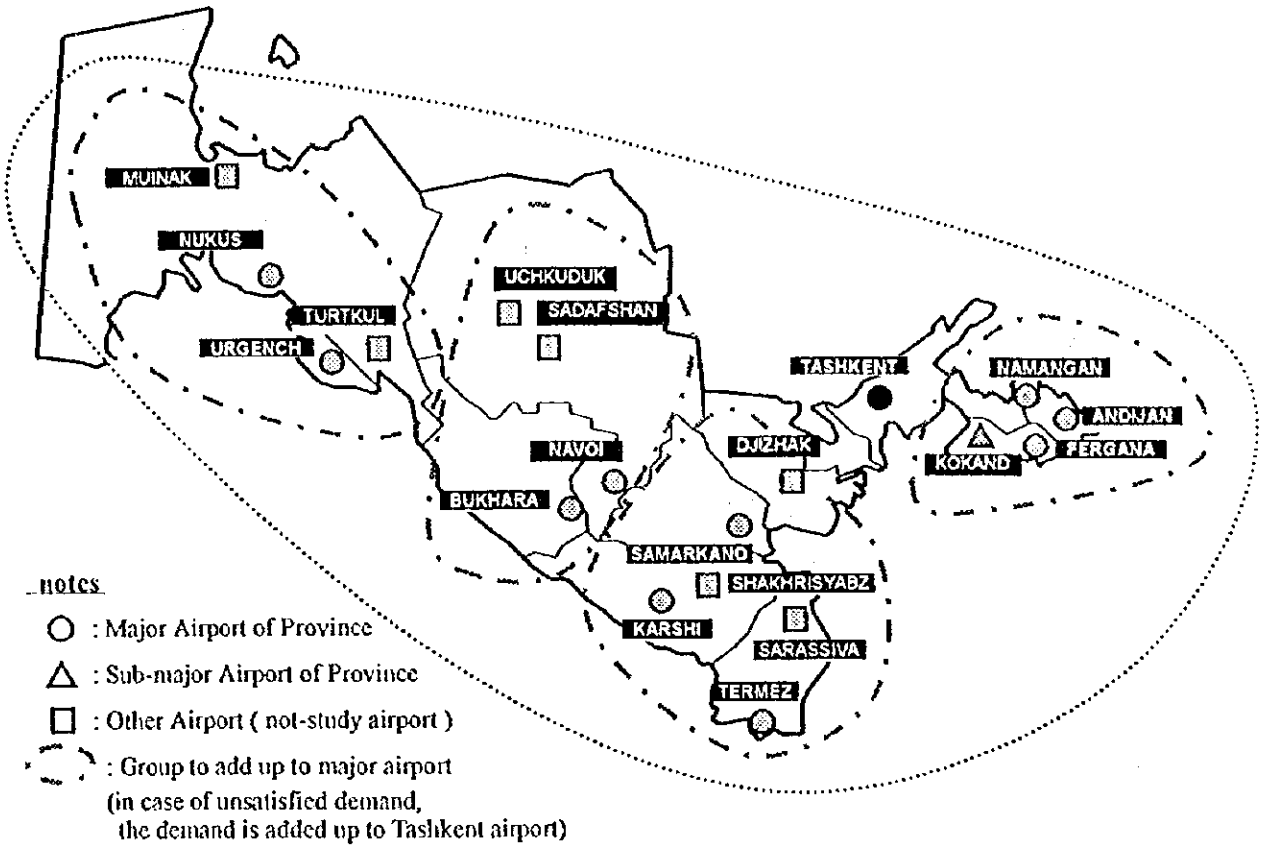


Fig 4.2.1 Grouping of Airports for CIS&Baltic/International Air Routes

b) Inter-CIS Services

The zoning of CIS and Baltic States is made by considering the location and mutual distance from Uzbekistan. The four individual zones are made for central Asia, and two combined zones are made for the other CIS and Baltic States. As a result, the following six zones are obtained:

Zoning for CIS and Baltic States

- Kazakhstan
- Kyrgystan
- Tajikistan
- Turkmenistan
- Kavkaz Countries - Armenia, Azerbaidjan and Gergia
- Slavic & Baltic States - Belarus, Rossian, Ukraine, Estonia, Latvia, Lithuania, and Moldova

c) International Services

The zoning of foreign countries is made by considering the directions of the air routes and by making reference to ICAO zoning. As a result, the following six zones are obtained:

Zoning for the other foreign countries

- North America
- Europe including other related area
- Middle-East
- Asia Pacific West (Afghanistan, India, Maldives etc.)
- Asia Pacific Central (Indonesia, Malaysia, Philippines, Singapore, Australia, New Zealand, etc.)
- Asia Pacific East (China, Korea, Japan, Hong Kong, etc.)

(4) Minimum Requirements for Scheduled Flight Operation

Considering the operation of the current scheduled flights in Uzbekistan, the minimum requirements for operating the scheduled flights on the respective air routes are established as follows:

a) Domestic Services

- Minimum size of aircraft to be served: mini size plane/fifty seats available
- Minimum aircraft movement necessitated: two flights per day (one round trip per day)
- Minimum passenger demand necessitated: twenty four thousands and five hundred passengers per annum (departure and arrival)

Note: no consideration of the above requirements for the existing air routes in service.

b) Inter-CIS Services

Inter-CIS services are divided into two groups in accordance with the hauling distance, those are , four countries of central Asia region in short haul distance, countries, and Kavkaz and Slavic & Baltic States in medium or long hauling distance countries.

Air routes connected with the central Asia

- Minimum size of aircraft to be served: mini size plane/fifty seats available
- Minimum aircraft movement necessitated: two flights per week (one round trip per week)
- Minimum passenger demand necessitated: three thousand and five hundred passengers per annum (departure and arrival)

Air routes connected with Kavkaz and Slavic & Baltic States

- Minimum size of aircraft to be served: small size jet aircraft/one hundred seats available. Minimum aircraft movement necessitated: two flights per week (one round trip per week)
- Minimum passenger demand required: seven thousand passengers per annum (departure and arrival)

c) International Services

- Minimum size of aircraft to be served: medium size jet aircraft/ two hundred seats available
- Minimum aircraft movement necessitated: two flights per week (one round trip per week)
- Minimum passenger demand necessitated: fourteen thousand passengers per annum (departure and arrival)

4.2.3 Domestic Air Passenger Traffic

(1) Methodology of Forecasting for Air Traffic Demand

The demand for the domestic air passenger traffic is forecast on the basis of the future GDP with the regression model which is established from actual statistical data for domestic passengers and from GDP values, explaining the domestic air passenger demand by GDP values as a variable. The domestic air passengers are distributed to the air routes respectively using the composition rates obtained from the actual data for origin and destination. They are, then, analyzed to prepare the forecasting model explained by the populations surrounding the respective airports and the road distance to mother-towns of the respective airports.

The potential demand of domestic air passengers is calculated for 136 air routes, among seventeen airports, using the above forecasting model. These potential figures are adjusted and finalized by the total demand of domestic passengers as the control total (refer to **Fig. 4.2.2**).

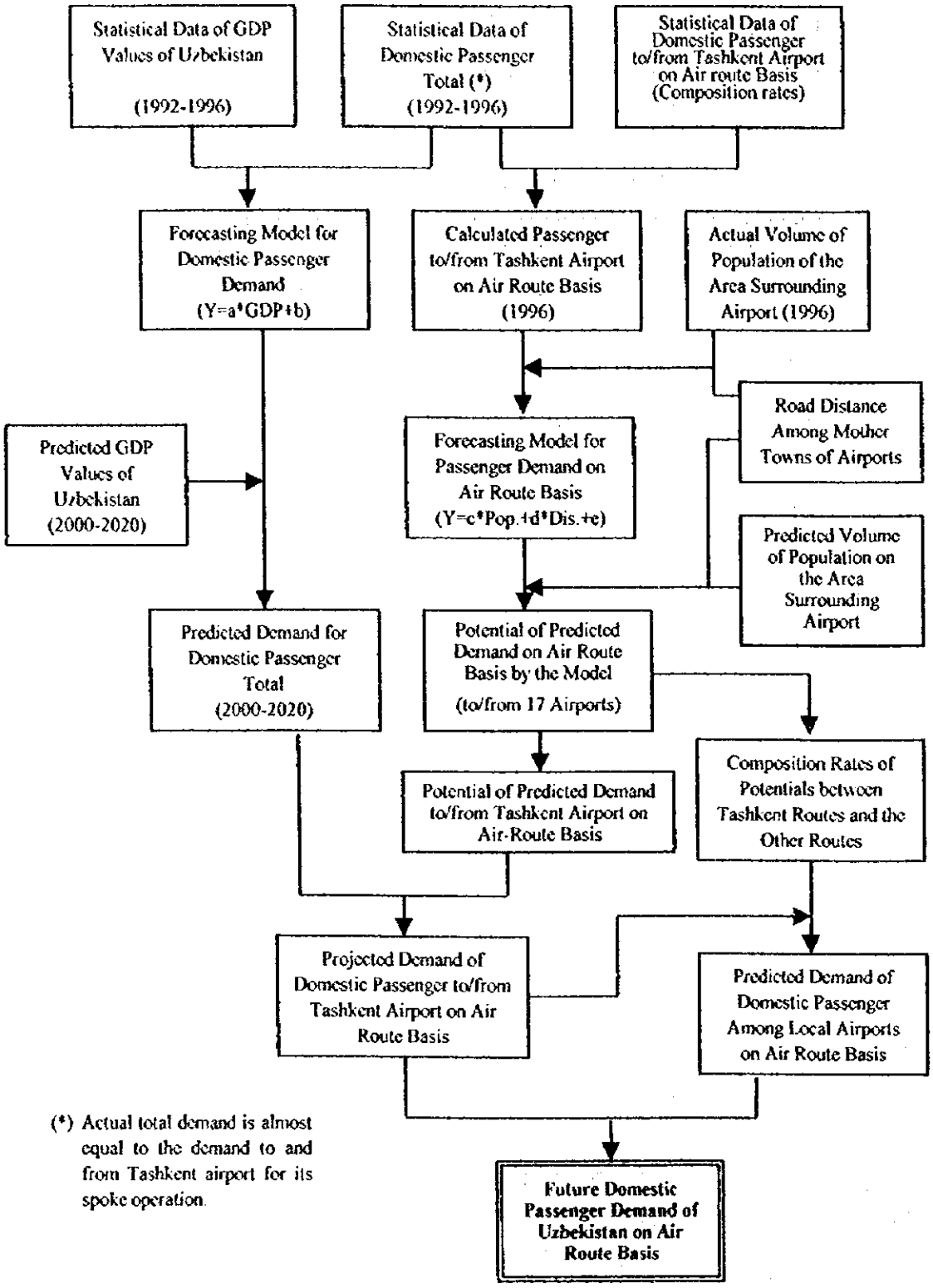


Fig. 4.2.2 Flow Diagram for Forecasting of Future Domestic Passenger

(2) Forecast of Domestic Air Passenger Demand Total in Uzbekistan

The following formula is established to estimate total domestic air passenger demand in Uzbekistan by an analysis of actual statistical data for the domestic air passenger and GDP values.

DP = (1.083) x (GDP) + (74.68)

Where DP: Domestic Passenger ('000)
GDP: GDP values of Uzbekistan (bil. sums)

The results of the total domestic air passenger demand in Uzbekistan are shown in **Table 4.2.1**.

Table 4.2.1 Forecast of Domestic Air Passenger Total in Uzbekistan

Year		1996	2000	2005	2010	2015	2020
Passenger ('000)	Case - 1	680.9	786.0	927.0	1,078.9	1,240.7	1,411.3
	Case - 2		810.4	1,003.6	1,237.6	1,519.5	1,857.5
	Case - 3		741.2	815.9	890.5	965.2	1,039.8

Note: These figures are embarkation passengers only.

These forecasts are based on the statistical data for the period of socio-economic confusion after the independence. All domestic flights were concentrated into Tashkent airport only, without any flights to and from the local airports at that time. The results of these forecasts are therefore considered to be the same as those for the demand to and from Tashkent airport only.

Therefore, the passenger demand between the local airports is forecast separately.

(3) Domestic Air Passenger Demand by Air Routes

After distributing the total domestic passenger at Tashkent airport in 1996 into each of the destination cities, in accordance with the composition rates of actual passenger movements between Tashkent city and the each of the destination cities, the following formula for estimating the domestic air passenger numbers between the zones in Uzbekistan is established by an analysis of the road distances from Tashkent city and the destination cities and the population in the area surrounding the airports (refer to **Table 4.2.2**),

Dpij = (10^const.) x (Dist._ij^coef_a) x (Pop._ij^coef_ b)

Where Dpij: Domestic Air Passenger between Zone i & j ('000)
Dist._ij: Road Distance between Zone i & j (km)
Pop._ij: Population of Zone i * Zone j ('000,000)
const.: 8.96005
coef_a: 1.22869
coef_b: 1.20145

The potential passenger demand is forecast for 136 air routes among 17 airports with the forecasting model based on the future population in the respective zones (refer to Table **4.2.3**) and the road distance between origin and destination cities (refer to Table **4.2.4**).

Domestic passenger demand to and from Tashkent airport by air route is obtained, through the distribution of the total domestic air passenger demand already forecast (refer to Table 4.2.1) into respective air routes to and from Tashkent airport, by multiplying the total passenger demand with the composition rates from the potential passenger demand.

In the same manner, the passengers numbers between local airports without connecting with Tashkent airport are obtained by the air route, by multiplying the total passenger demand with the ratio of potential demand between the Tashkent routes and other routes.

GDP of each zone is considered to be the most appropriate index to explain the economic potential of each zone. The population data is adopted for this model due to the lack of provincial GDP data..

Generally, the portion of air passengers is divided by the total numbers of passengers by road, railway and aviation, considering the competitiveness among road, railway and aviation transport. No data related to passenger flow between the provinces by transport mode in Uzbekistan are available.

Therefore, air passenger demand between provinces is forecast using a model, capable of explaining directly the air passenger flow between provinces.

The results are shown in **Table 4.2.5~4.2.7** for the demand of the domestic air passengers.

Table 4.2.2 Estimate of Present Air Passengers and Population / Road Distance

Air Route	Composition rates (%)	Estimate Pax. in 1996 ('000)	Road Distance (km)	Population in 1996 ('000)		Product (a*b) ('000,000)
				(a) Tashkent	(b) Another	
Tashkent -- Namangan	7.25	49.4	302	2,544.1	779.2	1,982,362.7
Tashkent -- Andizhan	12.62	85.9	362	2,544.1	1,075.5	2,736,179.6
Tashkent -- Fergana	11.81	80.4	331	2,544.1	1,127.8	2,869,236.0
Tashkent -- Kokand	2.05	14.0	247	2,544.1	336.7	856,598.5
Tashkent -- Samarkand	6.12	41.7	293	2,544.1	833.9	2,121,525.0
Tashkent -- Termez	10.86	73.9	677	2,544.1	509.2	1,295,455.7
Tashkent -- Karshi	5.45	37.1	445	2,544.1	481.9	1,226,001.8
Tashkent -- Bukhara	9.27	63.1	561	2,544.1	549.2	1,397,219.7
Tashkent -- Navoi	2.22	15.1	461	2,544.1	272.8	694,030.5
Tashkent -- Urgench	14.85	101.1	1,002	2,544.1	474.3	1,206,666.6
Tashkent -- Nukus	10.08	68.7	1,117	2,544.1	277.2	705,224.5
Tashkent -- Sarassiva	1.77	12.0	677	2,544.1	130.6	332,259.5
Tashkent -- Shakhrisyabz	0.15	1.0	355	2,544.1	83.0	211,160.3
Tashkent -- Uchkuduk	1.03	7.0	776	2,544.1	43.2	109,905.1
Tashkent -- Sadafshan	2.56	17.4	680	2,544.1	130.1	330,987.4
Tashkent -- Turtkul	1.90	12.9	951	2,544.1	84.8	215,739.7
Total	100.00	680.9	--	--	--	--

(note) population is sum of neighbor districts (cities, towns and villages) of airport

Table 4.2.3 Estimate of Population of Provinces and Zones

Airport	2000		2005		2010		2015		2020	
	Province ('000)	Zone ('000)	Province ('000)	Zone ('000)	Province ('000)	Zone ('000)	Province ('000)	Zone ('000)	Province ('000)	Zone ('000)
Tashkent	4,377.7	2,730.3	4,698.2	2,872.6	4,943.0	3,010.2	5,179.7	3,141.7	5,406.1	3,266.3
Namangan	1,786.4	841.1	1,928.3	926.7	2,124.6	1,010.5	2,316.6	1,091.8	2,503.1	1,170.3
Andizhan	2,040.3	1,147.1	2,176.1	1,250.3	2,371.9	1,351.1	2,563.2	1,448.9	2,748.6	1,542.9
Fergana	2,499.5	1,202.1	2,664.2	1,304.8	2,891.7	1,405.0	3,113.8	1,502.0	3,328.9	1,595.3
Kokand	2,499.5	358.9	2,664.2	389.5	2,891.7	419.5	3,113.8	448.4	3,328.9	476.3
Samarkand	2,488.6	906.0	2,660.4	987.0	2,898.1	1,066.1	3,130.3	1,142.7	3,355.4	1,216.4
Termez	1,582.4	553.0	1,718.4	617.4	1,918.8	680.6	2,115.2	742.1	2,306.3	801.6
Karshi	1,975.2	527.8	2,163.4	588.6	2,412.6	648.2	2,656.8	706.2	2,894.4	762.2
Bukhara	1,339.9	593.7	1,448.5	649.5	1,584.6	704.0	1,717.6	756.9	1,846.6	807.8
Navoi	748.2	297.9	816.9	324.4	889.6	350.2	960.6	375.3	1,029.3	399.4
Urgench	1,225.9	514.2	1,328.9	567.4	1,466.6	619.6	1,601.5	670.3	1,732.4	719.2
Nukus	1,418.1	303.1	1,550.5	332.4	1,700.7	361.1	1,847.5	389.0	1,990.0	415.8
Sarassiva	1,582.4	141.8	1,718.4	158.4	1,918.8	174.6	2,115.2	190.3	2,306.3	205.6
Shakhrisyabz	1,975.2	90.9	2,163.4	101.4	2,412.6	111.6	2,656.8	121.6	2,894.4	131.3
Uchkuduk	748.2	47.2	816.9	51.4	889.6	55.5	960.6	59.4	1,029.3	63.3
Sadafshan	748.2	142.1	816.9	154.7	889.6	167.0	960.6	179.0	1,029.3	190.5
Turtkul	1,418.1	92.7	1,550.5	101.7	1,700.7	110.5	1,847.5	119.0	1,990.0	127.2

(note) zone is limited neighbor districts (cities, towns and villages) of airport

Table 4.2.4 Road Distance Matrix

(km)	Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Sarassiva	Shakhrisyabz	Uchkuduk	Zarafshan	Turtkul
Tashkent		302	362	331	247	293	677	445	561	461	1,002	1,117	677	355	776	680	951
Namangan	302		67	96	109	595	979	747	863	763	1,304	1,419	979	657	1,078	982	1,253
Andizhan	362	67		73	115	772	1,039	924	923	940	1,368	1,479	1,039	834	1,255	1,159	1,317
Fergana	331	96	73		84	624	1,008	776	892	792	1,333	1,448	1,008	686	1,107	1,011	1,282
Kokand	247	109	115	84		607	924	809	808	775	1,253	1,364	924	669	1,090	994	1,202
Samarkand	293	595	772	624	607		381	152	268	168	709	824	384	62	483	387	658
Termez	677	979	1,039	1,008	924	384		333	494	552	935	1,050	170	322	867	771	884
Karshi	445	747	924	776	809	152	333		161	320	602	717	333	129	635	539	551
Bukhara	561	863	923	892	808	268	494	161		120	441	556	494	290	435	339	390
Navoi	461	763	940	792	775	168	552	320	120		561	658	552	230	315	219	510
Urgench	1,002	1,304	1,368	1,333	1,253	709	935	602	441	561		165	935	831	536	520	51
Nukus	1,117	1,419	1,479	1,448	1,364	824	1,050	717	556	658	165		1,050	846	380	476	166
Sarassiva	677	979	1,039	1,008	924	384	170	333	494	552	935	1,050		322	867	771	884
Shakhrisyabz	355	657	834	686	669	62	322	129	290	230	831	846	322		545	449	680
Uchkuduk	776	1,078	1,255	1,107	1,090	483	867	635	435	315	536	380	867	545		96	485
Sadafshan	680	982	1,159	1,011	994	387	771	539	339	219	520	476	771	449	96		469
Turtkul	951	1,253	1,317	1,282	1,202	658	884	551	390	510	51	166	884	680	485	469	

Table 4.2.5 Forecast of Annual Domestic Air Passengers by Airport Pairs (Case 1) (000)

Year	Airport	Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total (*)
2000	Tashkent		51.4	93.2	88.3	14.4	54.1	83.7	47.3	72.4	24.8	124.1	75.2	785.9
	Namangan	51.4		---	---	---	31.4	32.0	---	29.8	---	41.7	24.5	210.8
	Andizhan	93.2	---		---	---	62.8	50.0	40.9	47.1	---	64.2	37.4	395.6
	Fergana	88.3	---	---		---	51.1	50.9	34.9	47.7	---	65.8	38.6	377.3
	Kokand	14.4	---	---	---		---	---	---	---	---	---	---	14.4
	Samarkand	54.1	31.4	62.8	51.1	---		---	---	---	---	---	---	199.4
	Termez	83.7	32.0	50.0	50.9	---	---		---	---	---	---	---	216.6
	Karshi	47.3	---	40.9	34.9	---	---	---		---	---	---	---	123.1
	Bukhara	72.4	29.8	47.1	47.7	---	---	---	---		---	---	---	197.0
	Navoi	24.8	---	---	---	---	---	---	---	---		---	---	24.8
	Urgench	124.1	41.7	64.2	65.8	---	---	---	---	---	---		---	295.8
	Nukus	75.2	24.5	37.4	38.6	---	---	---	---	---	---	---		175.7
	others	57.0	---	---	---	---	---	---	---	---	---	---	---	57.0
	Total	785.9	210.8	395.6	377.3	14.4	199.4	216.6	123.1	197.0	24.8	295.8	175.7	3,073.4
2005	Tashkent		60.8	108.9	102.7	16.8	63.2	100.7	56.8	81.9	29.0	147.3	88.5	927.1
	Namangan	60.8		---	---	---	38.8	40.7	27.6	37.0	---	52.3	30.5	287.7
	Andizhan	108.9	---		---	---	76.5	62.7	51.3	57.6	25.6	79.5	46.0	508.1
	Fergana	102.7	---	---		---	62.0	63.6	43.5	58.2	---	81.0	47.2	458.2
	Kokand	16.8	---	---	---		---	---	---	---	---	---	---	16.8
	Samarkand	63.2	38.8	76.5	62.0	---		---	---	---	---	26.7	---	267.2
	Termez	100.7	40.7	62.7	63.6	---	---		---	---	---	---	---	267.7
	Karshi	56.8	27.6	51.3	43.5	---	---	---		---	---	---	---	179.2
	Bukhara	81.9	37.0	57.6	58.2	---	---	---	---		---	---	---	237.7
	Navoi	29.0	---	25.6	---	---	---	---	---	---		---	---	54.6
	Urgench	147.3	52.3	79.5	81.0	---	26.7	---	---	---	---		---	386.8
	Nukus	88.5	30.5	46.0	47.2	---	---	---	---	---	---	---		212.2
	others	67.5	---	---	---	---	---	---	---	---	---	---	---	67.5
	Total	927.1	287.7	508.1	458.2	16.8	267.2	267.7	179.2	237.7	54.6	386.8	212.2	3,870.8
2010	Tashkent		71.0	125.8	118.1	19.3	73.0	119.1	67.1	98.4	33.4	172.2	102.9	1,078.9
	Namangan	71.0		---	---	---	46.9	50.5	34.1	45.0	---	64.1	37.2	348.8
	Andizhan	125.8	---		---	---	91.6	77.0	62.9	69.3	30.6	96.4	55.5	609.1
	Fergana	118.1	---	---		---	73.9	77.7	53.2	69.7	26.0	97.9	56.7	573.2
	Kokand	19.3	---	---	---		---	---	---	---	---	---	---	19.3
	Samarkand	73.0	46.9	91.6	73.9	---		---	---	---	---	32.3	---	317.7
	Termez	119.1	50.5	77.0	77.7	---	---		---	---	---	26.5	---	350.8
	Karshi	67.1	34.1	62.9	53.2	---	---	---		---	---	---	---	217.3
	Bukhara	98.4	45.0	69.3	69.7	---	---	---	---		---	---	---	282.4
	Navoi	33.4	---	30.6	26.0	---	---	---	---	---		---	---	90.0
	Urgench	172.2	64.1	96.4	97.9	---	32.3	26.5	---	---	---		---	489.4
	Nukus	102.9	37.2	55.5	56.7	---	---	---	---	---	---	---		252.3
	others	78.6	---	---	---	---	---	---	---	---	---	---	---	78.6
	Total	1,078.9	348.8	609.1	573.2	19.3	317.7	350.8	217.3	282.4	90.0	489.4	252.3	4,707.8
2015	Tashkent		81.9	143.7	131.4	21.9	83.3	138.8	78.1	112.8	38.2	198.8	118.2	1,240.9
	Namangan	81.9		---	---	---	55.9	61.3	41.4	53.8	---	77.2	41.5	416.0
	Andizhan	143.7	---		---	---	108.1	92.7	75.6	82.1	36.1	115.0	65.8	719.1
	Fergana	131.4	---	---		---	86.9	93.3	63.7	82.2	30.6	116.3	67.0	674.4
	Kokand	21.9	---	---	---		---	---	---	---	---	25.2	---	47.1
	Samarkand	83.3	55.9	108.1	86.9	---		---	---	---	---	38.6	---	372.8
	Termez	138.8	61.3	92.7	93.3	---	---		---	---	---	32.3	---	418.4
	Karshi	78.1	41.4	75.6	63.7	---	---	---		---	---	---	---	258.8
	Bukhara	112.8	53.8	82.1	82.2	---	---	---	---		---	---	---	330.9
	Navoi	38.2	---	36.1	30.6	---	---	---	---	---		---	---	104.9
	Urgench	198.8	77.2	115.0	116.3	25.2	38.6	32.3	---	---	---		---	603.4
	Nukus	118.2	41.5	65.8	67.0	---	---	---	---	---	---	---		295.5
	others	90.8	---	---	---	---	---	---	---	---	---	---	---	90.8
	Total	1,240.9	416.0	719.1	674.4	47.1	372.8	418.4	258.8	330.9	104.9	603.4	295.5	5,573.0
2020	Tashkent		93.3	162.5	151.5	24.7	94.2	159.2	89.7	127.9	43.1	226.9	134.3	1,411.2
	Namangan	93.3		---	---	---	65.5	73.2	49.4	63.3	---	91.4	52.5	488.6
	Andizhan	162.5	---		---	---	125.8	109.8	89.4	95.8	42.0	135.1	77.0	837.4
	Fergana	151.5	---	---		---	100.8	110.1	75.1	95.6	35.4	136.2	78.1	782.8
	Kokand	24.7	---	---	---		---	---	---	---	---	29.5	---	54.2
	Samarkand	94.2	65.5	125.8	100.8	---		---	---	---	---	45.3	28.2	459.8
	Termez	159.7	73.2	109.8	110.1	---	---		---	---	---	38.5	---	491.3
	Karshi	89.7	49.4	89.4	75.1	---	---	---		---	---	---	---	303.6
	Bukhara	127.9	63.3	95.5	95.6	---	---	---	---		---	---	---	382.6
	Navoi	43.1	---	42.0	35.4	---	---	---	---	---		---	---	120.5
	Urgench	226.9	91.4	135.1	136.2	29.5	45.3	38.5	---	---	---		---	702.9
	Nukus	134.3	52.5	77.0	78.1	---	28.2	---	---	---	---	---		370.1
	others	103.4	---	---	---	---	---	---	---	---	---	---	---	103.4
	Total	1,411.2	488.6	837.4	782.8	54.2	459.8	491.3	303.6	382.6	120.5	702.9	370.1	6,508.4

(*) : including other airports

Table 4.2.6 Forecast of Annual Domestic Air Passengers by Airport Pairs (Case 2) (000)

Year	Airport	Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total (*)
2000	Tashkent	---	53.0	96.1	91.1	13.9	55.8	86.3	48.7	74.6	25.6	128.0	77.5	810.4
	Namangan	53.0	---	---	---	---	32.4	33.0	---	30.8	---	43.0	25.3	217.5
	Andizhan	96.1	---	---	---	---	64.7	51.5	42.2	48.5	---	66.2	38.6	407.8
	Fergana	91.1	---	---	---	---	52.7	52.5	36.0	49.2	---	67.8	39.8	389.1
	Kokand	13.9	---	---	---	---	---	---	---	---	---	---	---	13.9
	Samarkand	55.8	32.4	64.7	52.7	---	---	---	---	---	---	---	---	205.6
	Termez	86.3	33.0	51.5	52.5	---	---	---	---	---	---	---	---	223.3
	Karshi	48.7	---	42.2	36.0	---	---	---	---	---	---	---	---	126.9
	Bukhara	74.6	30.8	48.5	49.2	---	---	---	---	---	---	---	---	203.1
	Navoi	25.6	---	---	---	---	---	---	---	---	---	---	---	25.6
	Urgench	128.0	43.0	66.2	67.8	---	---	---	---	---	---	---	---	305.0
	Nukus	77.5	25.3	38.6	39.8	---	---	---	---	---	---	---	---	181.2
	others	58.8	---	---	---	---	---	---	---	---	---	---	---	58.8
	Total	810.4	217.5	407.8	389.1	13.9	205.6	223.3	126.9	203.1	25.6	305.0	181.2	3,169.2
2005	Tashkent	---	65.8	117.9	111.2	18.2	68.4	109.0	61.5	91.9	31.4	153.4	95.8	1,003.7
	Namangan	65.8	---	---	---	---	42.0	41.0	29.8	40.1	---	56.6	33.0	311.3
	Andizhan	117.9	---	---	---	---	82.8	67.9	55.5	62.4	27.7	86.0	49.8	550.0
	Fergana	111.2	---	---	---	---	67.1	68.9	47.1	63.0	---	87.7	51.1	496.1
	Kokand	18.2	---	---	---	---	---	---	---	---	---	---	---	18.2
	Samarkand	68.4	42.0	82.8	67.1	---	---	---	---	---	---	28.9	---	289.2
	Termez	109.0	41.0	67.9	68.9	---	---	---	---	---	---	---	---	289.8
	Karshi	61.5	29.8	55.5	47.1	---	---	---	---	---	---	---	---	193.9
	Bukhara	91.9	40.1	62.4	63.0	---	---	---	---	---	---	---	---	257.4
	Navoi	31.4	---	27.7	---	---	---	---	---	---	---	---	---	59.1
	Urgench	153.4	56.6	86.0	87.7	---	28.9	---	---	---	---	---	---	418.6
	Nukus	95.8	33.0	49.8	51.1	---	---	---	---	---	---	---	---	229.7
	others	73.2	---	---	---	---	---	---	---	---	---	---	---	73.2
	Total	1,003.7	311.3	550.0	496.1	18.2	289.2	289.8	193.9	257.4	59.1	418.6	229.7	4,190.7
2010	Tashkent	---	81.4	141.3	135.4	22.1	83.7	136.6	76.9	112.9	38.3	197.5	118.0	1,237.3
	Namangan	81.4	---	---	---	---	53.8	57.9	39.2	51.6	---	73.6	42.7	400.2
	Andizhan	141.3	---	---	---	---	105.1	88.3	72.1	79.5	35.1	110.6	63.6	698.6
	Fergana	135.4	---	---	---	---	84.8	89.2	61.0	79.9	29.8	112.3	65.0	657.4
	Kokand	22.1	---	---	---	---	---	---	---	---	---	---	---	22.1
	Samarkand	83.7	53.8	105.1	84.8	---	---	---	---	---	---	37.1	---	364.5
	Termez	136.6	57.9	88.3	89.2	---	---	---	---	---	---	30.4	---	402.4
	Karshi	76.9	39.2	72.1	61.0	---	---	---	---	---	---	---	---	249.2
	Bukhara	112.9	51.6	79.5	79.9	---	---	---	---	---	---	---	---	323.9
	Navoi	38.3	---	35.1	29.8	---	---	---	---	---	---	---	---	103.2
	Urgench	197.5	73.6	110.6	112.3	---	37.1	30.4	---	---	---	---	---	561.5
	Nukus	118.0	42.7	63.6	65.0	---	---	---	---	---	---	---	---	289.3
	others	90.2	---	---	---	---	---	---	---	---	---	---	---	90.2
	Total	1,237.3	400.2	638.6	657.4	22.1	364.5	402.4	249.2	323.9	103.2	561.5	289.3	5,399.8
2015	Tashkent	---	100.2	176.0	161.6	26.9	102.0	170.0	95.6	138.2	46.7	243.5	141.7	1,519.5
	Namangan	100.2	---	---	---	---	68.4	75.1	50.8	65.9	---	94.5	51.5	509.4
	Andizhan	176.0	---	---	---	---	132.4	113.5	92.6	100.5	41.3	140.8	80.6	880.7
	Fergana	161.6	---	---	---	---	106.4	114.2	78.0	100.6	37.4	142.5	82.0	825.7
	Kokand	26.9	---	---	---	---	---	---	---	---	---	30.9	---	57.8
	Samarkand	102.0	68.4	132.4	106.4	---	---	25.1	---	---	---	47.2	29.5	511.0
	Termez	170.0	75.1	113.5	114.2	---	25.1	---	---	---	---	30.5	---	537.4
	Karshi	95.6	50.8	92.6	78.0	---	---	---	---	---	---	---	---	317.0
	Bukhara	138.2	65.9	100.5	100.6	---	---	---	---	---	---	---	---	405.2
	Navoi	46.7	---	41.3	37.4	---	---	---	---	---	---	---	---	128.4
	Urgench	243.5	94.5	140.8	142.5	30.9	47.2	30.5	---	---	---	---	---	738.9
	Nukus	141.7	51.5	80.6	82.0	---	29.5	---	---	---	---	---	---	391.3
	others	111.1	---	---	---	---	---	---	---	---	---	---	---	111.1
	Total	1,519.5	509.4	880.7	825.7	57.8	511.0	537.4	317.0	405.2	128.4	738.9	391.3	6,933.4
2020	Tashkent	---	122.8	213.9	199.4	32.6	124.0	210.2	118.1	168.4	56.8	298.6	176.7	1,857.6
	Namangan	122.8	---	---	---	---	86.2	96.3	65.0	83.3	30.7	120.3	69.1	673.7
	Andizhan	213.9	---	---	---	---	165.5	141.5	117.7	126.1	55.3	177.8	101.3	1,187.8
	Fergana	199.4	---	---	---	---	132.7	141.9	98.9	125.8	46.7	179.3	102.8	1,112.0
	Kokand	32.6	---	---	---	---	30.0	30.5	---	26.1	---	38.9	---	158.1
	Samarkand	124.0	86.2	165.5	132.7	30.0	---	32.0	---	---	---	59.6	37.1	667.1
	Termez	210.2	96.3	141.5	141.9	30.5	32.0	---	---	26.6	---	50.7	30.3	766.0
	Karshi	118.1	65.0	117.7	98.9	---	---	---	---	---	---	27.8	---	427.5
	Bukhara	168.4	83.3	126.1	125.8	26.1	---	26.6	---	---	---	---	---	556.3
	Navoi	56.8	30.7	55.3	46.7	---	---	---	---	---	---	---	---	189.5
	Urgench	298.6	120.3	177.8	179.3	38.9	59.6	50.7	27.8	---	---	---	---	953.0
	Nukus	176.7	69.1	101.3	102.8	---	37.1	30.3	---	---	---	---	---	517.3
	others	136.1	---	85.7	81.5	---	---	---	---	---	---	---	---	303.3
	Total	1,857.6	673.7	1,187.8	1,112.0	158.1	667.1	766.0	427.5	556.3	189.5	953.0	517.3	9,369.2

(*) : including other airports

Table 4.2.7 Forecast of Annual Domestic Air Passengers by Airport Pairs (Case 3) ('000)

Year	Airport	Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total (*)
2009	Tashkent	...	48.5	87.9	83.3	13.6	51.0	28.9	41.6	68.2	23.4	117.1	70.9	741.2
	Namangan	48.5	...	...	...	...	29.6	30.2	...	28.1	...	33.3	...	175.7
	Andizhan	87.9	...	...	...	...	59.2	47.1	38.6	41.4	...	60.5	35.3	373.0
	Fergana	83.3	...	...	...	...	48.2	48.0	32.9	45.0	...	62.0	36.4	355.8
	Kokand	13.6	...	...	...	...	...	...	...	...	...	...	...	13.6
	Samarkand	51.0	29.6	59.2	48.2	...	...	...	...	...	...	...	...	188.0
	Termez	28.9	30.2	47.1	48.0	...	...	...	...	...	...	...	...	204.2
	Karshi	41.6	...	38.6	32.9	...	...	...	...	...	...	...	...	116.1
	Bukhara	68.2	28.1	41.4	45.0	...	...	...	...	...	...	...	...	185.7
	Navoi	23.4	...	...	...	...	...	...	...	...	...	...	...	23.4
	Urgench	117.1	33.3	60.5	62.0	...	...	...	...	...	...	...	...	278.9
	Nukus	70.9	...	35.3	36.4	...	...	...	...	...	...	...	...	142.6
	others	53.8	...	...	...	...	...	...	...	...	...	...	...	53.8
	Total	741.2	175.7	373.0	355.8	13.6	188.0	204.2	116.1	185.7	23.4	278.9	142.6	2,852.0
2005	Tashkent	...	53.5	95.8	90.4	14.8	55.6	88.6	50.0	74.7	25.5	129.6	77.9	815.9
	Namangan	53.5	...	...	...	...	34.1	35.8	...	32.6	...	46.0	26.9	228.9
	Andizhan	95.8	...	...	...	...	67.3	55.2	45.1	50.7	...	69.9	40.5	424.5
	Fergana	90.4	...	...	...	...	54.6	56.0	38.3	51.2	...	71.3	41.5	403.3
	Kokand	14.8	...	...	...	...	...	...	...	...	...	...	...	14.8
	Samarkand	55.6	34.1	67.3	54.6	...	...	...	...	...	...	...	...	211.6
	Termez	88.6	35.8	55.2	56.0	...	...	...	...	...	...	...	...	235.6
	Karshi	50.0	...	45.1	38.3	...	...	...	...	...	...	...	...	133.4
	Bukhara	74.7	32.6	50.7	51.2	...	...	...	...	...	...	...	...	209.2
	Navoi	25.5	...	...	...	...	...	...	...	...	...	...	...	25.5
	Urgench	129.6	46.0	69.9	71.3	...	...	...	...	...	...	...	...	316.8
	Nukus	77.9	26.9	40.5	41.5	...	...	...	...	...	...	...	...	186.8
	others	59.5	...	...	...	...	...	...	...	...	...	...	...	59.5
	Total	815.9	228.9	424.5	403.3	14.8	211.6	235.6	133.4	209.2	25.5	316.8	186.8	3,265.8
2010	Tashkent	...	58.6	103.8	92.5	15.9	60.2	98.3	55.3	81.2	27.6	142.1	84.9	890.5
	Namangan	58.6	...	...	...	...	38.7	41.7	28.2	37.2	...	52.9	30.7	288.0
	Andizhan	103.8	...	...	...	...	75.6	63.5	51.9	57.2	25.3	79.6	45.8	502.7
	Fergana	92.5	...	...	...	...	61.0	64.2	43.9	57.5	...	80.8	46.8	451.7
	Kokand	15.9	...	...	...	...	...	...	...	...	...	...	...	15.9
	Samarkand	60.2	38.7	75.6	61.0	...	...	...	...	...	...	26.7	...	262.2
	Termez	98.3	41.7	63.5	64.2	...	...	...	...	...	...	...	...	267.7
	Karshi	55.3	28.2	51.9	43.9	...	...	...	...	...	...	...	...	179.3
	Bukhara	81.2	37.2	57.2	57.5	...	...	...	...	...	...	...	...	233.1
	Navoi	27.6	...	25.3	...	...	...	...	...	...	...	...	...	52.9
	Urgench	142.1	52.9	79.6	80.8	...	26.7	...	...	...	...	...	...	382.1
	Nukus	84.9	30.7	45.8	46.8	...	...	...	...	...	...	...	...	208.2
	others	65.1	...	...	...	...	...	...	...	...	...	...	...	65.1
	Total	890.5	288.0	502.7	451.7	15.9	262.2	267.7	179.3	233.1	52.9	382.1	208.2	3,799.4
2015	Tashkent	...	63.7	111.8	104.5	17.1	64.8	108.0	60.7	87.8	29.7	154.7	91.9	965.4
	Namangan	63.7	...	...	...	...	43.5	47.7	32.2	41.8	...	60.0	34.6	323.5
	Andizhan	111.8	...	...	...	...	84.1	72.1	58.8	63.8	28.1	89.5	51.2	559.4
	Fergana	104.5	...	...	...	...	67.6	72.5	49.6	63.9	...	90.5	52.1	500.7
	Kokand	17.1	...	...	...	...	...	...	...	...	...	...	...	17.1
	Samarkand	64.8	43.5	84.1	67.6	...	...	...	...	...	...	30.0	...	290.0
	Termez	108.0	47.7	72.1	72.5	...	...	...	...	...	...	25.1	...	325.4
	Karshi	60.7	32.2	58.8	49.6	...	...	...	...	...	...	...	...	201.3
	Bukhara	87.8	41.8	63.8	63.9	...	...	...	...	...	...	...	...	257.3
	Navoi	29.7	...	28.1	...	...	...	...	...	...	...	...	...	57.8
	Urgench	154.7	60.0	89.5	90.5	...	30.0	25.1	...	...	...	...	...	449.8
	Nukus	91.9	34.6	51.2	52.1	...	...	...	...	...	...	...	...	229.8
	others	70.7	...	...	...	...	...	...	...	...	...	...	...	70.7
	Total	965.4	323.5	559.4	500.7	17.1	290.0	325.4	201.3	257.3	57.8	449.8	229.8	4,248.2
2020	Tashkent	...	68.7	119.7	111.6	18.2	69.4	117.6	66.1	94.3	31.8	167.2	98.9	1,039.7
	Namangan	68.7	...	...	...	...	48.3	53.9	36.4	46.6	...	67.3	38.7	359.5
	Andizhan	119.7	...	...	...	...	92.7	80.9	65.9	70.6	31.0	99.5	56.7	617.0
	Fergana	111.6	...	...	...	...	74.3	81.1	55.4	70.4	26.1	100.4	57.5	576.8
	Kokand	18.2	...	...	...	...	...	...	...	...	...	...	...	18.2
	Samarkand	69.4	48.3	92.7	74.3	...	...	...	...	...	...	33.4	...	318.1
	Termez	117.6	53.9	80.9	81.1	...	...	...	...	...	...	28.4	...	361.9
	Karshi	66.1	36.4	65.9	55.4	...	...	...	...	...	...	...	...	223.8
	Bukhara	94.3	46.6	70.6	70.4	...	...	...	...	...	...	...	...	281.9
	Navoi	31.8	...	31.0	26.1	...	...	...	...	...	...	...	...	88.9
	Urgench	167.2	67.3	99.5	100.4	...	33.4	28.4	...	...	...	...	...	496.2
	Nukus	98.9	38.7	56.7	57.5	...	...	...	...	...	...	...	...	251.8
	others	76.2	...	...	...	...	...	...	...	...	...	...	...	76.2
	Total	1,039.7	359.9	617.0	576.8	18.2	318.1	361.9	223.8	281.9	88.9	496.2	251.8	4,710.4

(*) : Including other airports

4.2.4 Inter-CIS Air Passenger Traffic

(1) Methodology of Air Traffic Demand Forecasting

Inter-CIS air traffic demand is forecast based on the future GDP with a regression model explaining the inter-CIS air passenger demand in terms of GDP values as the variable.

The total inter-CIS air passenger demand is distributed to the respective zones, using the ratio of actual passenger flow between zones and the socio-economic indices of Uzbekistan. The demand figures are then finally determined by comparing the minimum requirements for scheduled flight operation (refer to **Fig. 4.2.3**).

(2) Forecast of Inter-CIS Air Passenger Demand

The following formula is established on the basis of the analysis of the actual statistical data on the Inter-CIS air passenger flow and GDP value from 1992 to 1996.

$CP = (4.064) \times (GDP) - (1537.03)$

Where CP: Inter-CIS Passenger ('000)
GDP: GDP value of Uzbekistan (bil. sums)

The results of the above forecasting are shown in **Table 4.2.8**.

Table 4.2.8 Forecast of Inter-CIS Air Passenger in Uzbekistan

Year		1996	2000	2005	2010	2015	2020
Passenger ('000)	Case - 1	736.2	1,134.4	1,662.9	2,232.5	2,839.3	3,479.2
	Case - 2		1,226.9	1,950.9	2,828.1	3,884.7	5,151.4
	Case - 3		965.1	1,244.8	1,524.5	1,804.2	2,083.9

Note: These figures are embarking and disembarking passengers.

It would be desirable to use both the GDP of Uzbekistan and that of the CIS & Baltic States for Inter-CIS air passenger forecasting. However, the above formula is based on the GDP of Uzbekistan only due to insufficient and incomplete statistics for the CIS and Baltic States.

(3) Air Passenger Demand by Air Route

The total Inter-CIS air passenger demand (refer to **Table 4.2.8**) is distributed to the demand of the respective zones in the CIS countries and Baltic States, by multiplying the composition rates of the past passenger movements between Tashkent airport and CIS & Baltic States. The air traffic demand between the local airports and the CIS and Baltic States is distributed by using the average share of the population and foreign trade amount of each zone in Uzbekistan (refer to **Table 4.2.9**). The above zone based demand is finally determined by checking the minimum requirements for scheduled flight operation in the CIS and Baltic States.

As shown in **Table 4.2.10**, the ratio of the past air passenger volume by CIS and Baltic States shows almost the same tendency as that of the foreign trade amount between Uzbekistan and CIS and Baltic States. Therefore, the air traffic demand between the local airports and CIS and Baltic States is distributed by using the ratio of foreign trade amount between Uzbekistan, and CIS and Baltic States.

The results are shown in **Table 4.2.11~4.2.13** for the demands of air passenger of Inter-CIS service.

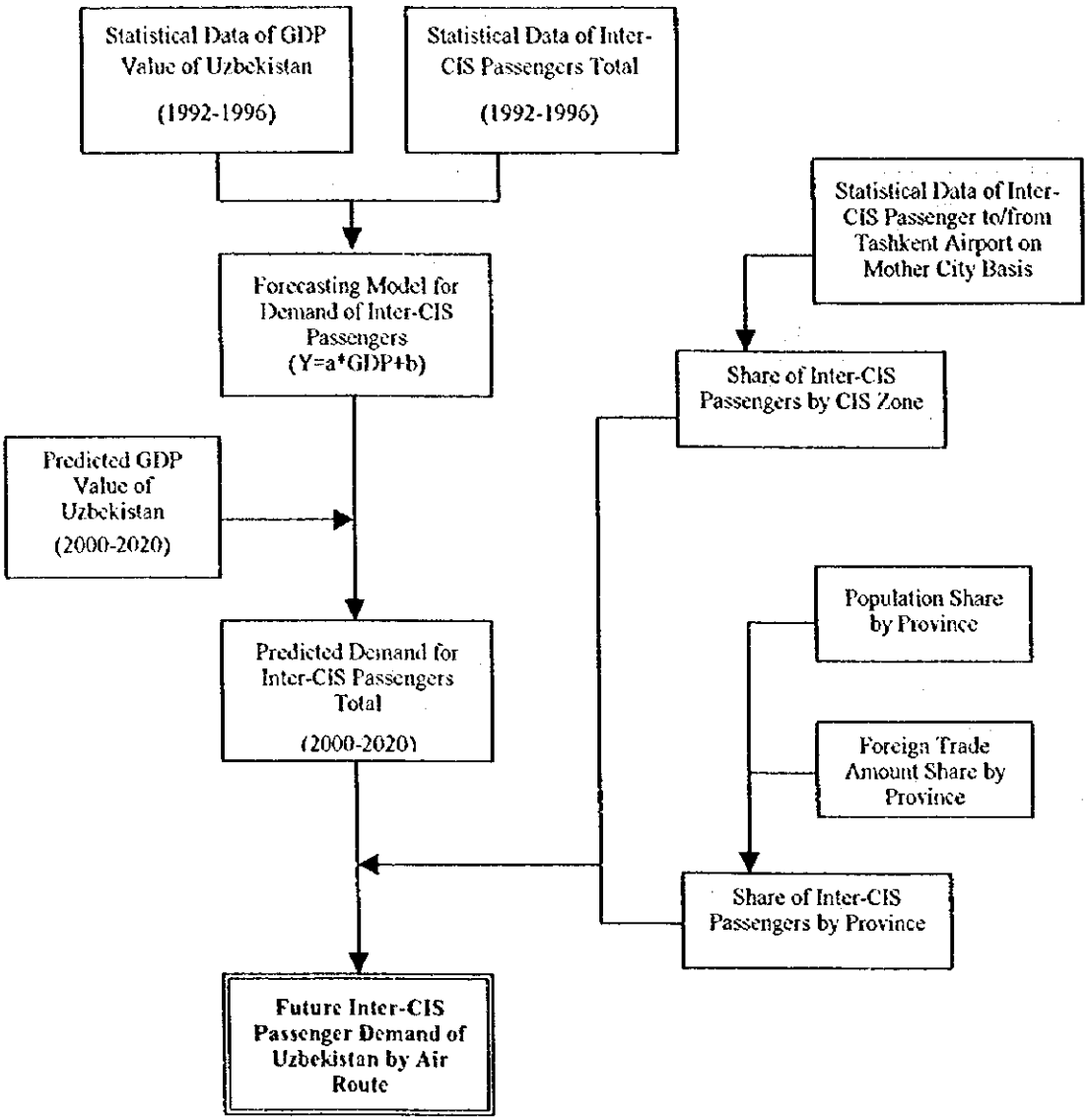


Fig. 4.2.3 Flow Diagram for Forecasting of Future Inter-CIS Passenger Demand

Table 4.2.9 Share of Inter-CIS Passengers by Provinces

Province	Population in 1996 (%)	Foreign Trade in 1996 (%)	Average Combined Share (%)
Karakalpakstan	7.95	2.58	5.26
Andizhan	7.10	5.57	6.33
Bukhara	5.04	6.45	5.75
Djizhak	3.29	1.32	2.31
Kashkadarya	5.98	4.32	5.15
Navoi	3.48	5.55	4.51
Namangan	7.84	2.96	5.40
Samarkand	8.22	3.87	6.04
Surkhandarya	3.77	3.17	3.47
Tashkent	35.31	56.72	46.01
Fergana	8.52	4.68	6.60
Khorezm	3.51	2.82	3.16
Total	100.00	100.00	100.00

Table 4.2.10 Share of Air Passengers and Foreign Trade by Directions

Direction		Air Passenger in 1996 (%)	Foreign Trade in 1995 (%)
Region	Country		
CIS	Azerbaijan	1.87	0.13
	Armenia	0.18	0.00
	Belarus	1.28	2.05
	Georgia	0.24	0.04
	Kazakhstan	6.70	16.88
	Kyrgystan	0.59	4.70
	Moldova	0.02	0.13
	Russia	84.43	50.14
	Tajikistan	0.03	10.68
	Turkmenistan	1.94	9.91
	Ukraine	2.61	3.43
Baltic States	Latvia	0.08	0.57
	Lithuania	0.03	1.13
	Estnia	0.00	0.21
Total		100.00	100.00

Table 4.2.11 Forecast of Annual Inter-CIS Air Passengers by Routes (Case 1)

('000)

Year	Direction		Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total
2000	Central Asia	Kazakhstan	35.9	4.1	4.8	5.6	---	8.1	---	3.9	7.8	---	2.4	4.0	76.6
		Kyrgyzstan	6.6	---	---	---	---	---	---	---	---	---	---	---	6.6
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0.0
		Turkmenistan	14.6	---	---	4.1	---	3.5	---	---	---	---	---	---	22.2
	Kavkaz Countries		25.9	---	---	---	---	---	---	---	---	---	---	---	25.9
	Slavic/Baltic States		473.3	54.2	63.6	66.3	---	72.3	34.7	51.6	57.6	45.3	31.7	52.9	1,003.5
	Total		556.3	58.3	68.4	75.4	---	83.9	34.7	55.5	65.4	45.3	34.1	56.9	1,134.2
2005	Central Asia	Kazakhstan	52.6	6.0	7.1	7.4	---	8.0	3.9	5.7	6.4	5.0	3.5	5.9	111.5
		Kyrgyzstan	9.6	---	---	---	---	---	---	---	---	---	---	---	9.6
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0.0
		Turkmenistan	21.4	---	---	5.8	---	5.2	---	---	---	---	---	---	32.4
	Kavkaz Countries		31.3	---	---	7.2	---	---	---	---	---	---	---	---	38.5
	Slavic/Baltic States		693.8	79.3	93.0	97.0	---	105.9	51.0	75.7	84.5	66.5	46.6	77.4	1,470.7
	Total		808.2	85.3	100.1	117.4	---	119.1	54.9	81.4	90.9	71.5	50.1	83.3	1,662.7
2010	Central Asia	Kazakhstan	70.6	8.1	9.5	9.9	---	10.8	5.2	7.7	8.6	6.8	4.7	7.9	149.8
		Kyrgyzstan	13.3	---	---	---	---	---	---	---	---	---	---	---	13.3
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0.0
		Turkmenistan	20.4	---	---	7.9	---	6.8	---	---	8.5	---	3.7	---	43.3
	Kavkaz Countries		33.7	---	---	9.5	---	7.9	---	---	---	---	---	---	51.1
	Slavic/Baltic States		931.4	106.5	125.1	130.3	---	142.0	68.5	101.7	113.3	89.1	62.4	103.9	1,974.2
	Total		1,069.4	114.6	134.6	157.6	---	167.5	73.7	109.4	126.4	95.9	70.8	111.8	2,231.7
2015	Central Asia	Kazakhstan	89.7	10.3	12.0	12.5	---	13.7	6.6	9.8	10.9	8.6	6.0	10.0	190.1
		Kyrgyzstan	16.9	---	---	---	---	---	---	---	---	---	---	---	16.9
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0.0
		Turkmenistan	26.1	---	3.5	6.6	---	8.7	---	---	5.7	---	4.6	---	55.2
	Kavkaz Countries		43.0	---	---	12.0	---	10.3	---	---	---	---	---	---	65.3
	Slavic/Baltic States		1,354.5	135.6	159.0	165.7	---	180.8	87.2	129.4	144.4	113.2	79.4	132.1	2,511.3
	Total		1,360.2	145.9	174.5	196.8	---	213.5	93.8	139.2	161.0	121.8	90.0	142.1	2,838.8
2020	Central Asia	Kazakhstan	110.0	12.6	14.8	15.4	---	16.8	8.1	12.0	13.4	10.5	7.4	12.3	233.3
		Kyrgyzstan	16.7	---	---	3.7	---	---	---	---	---	---	---	---	20.4
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0.0
		Turkmenistan	31.9	3.6	4.3	4.5	---	7.2	---	3.5	6.5	---	2.1	3.6	67.6
	Kavkaz Countries		48.3	---	---	14.6	---	12.5	---	---	8.2	---	---	---	79.6
	Slavic/Baltic States		1,451.5	166.1	191.8	202.9	---	221.4	106.7	158.6	176.8	138.9	97.3	161.8	3,076.9
	Total		1,654.4	182.3	213.9	241.1	---	257.9	114.8	174.1	205.3	149.4	106.8	177.7	3,477.2

Table 4.2.12 Forecast of Annual Inter-CIS Air Passengers by Routes (Case 2)

('000)

Year	Direction		Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total
2000	Central Asia	Kazakhstan	38.8	4.4	5.2	5.4	---	8.9	---	4.2	4.7	3.2	2.6	4.3	82.2
		Kyrgyzstan	7.2	---	---	---	---	---	---	---	---	---	---	---	7.2
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0.0
		Turkmenistan	15.9	---	---	4.4	---	3.7	---	---	---	---	---	---	24.0
	Kavkaz Countries		28.3	---	---	---	---	---	---	---	---	---	---	---	28.3
	Slavic/Baltic States		511.8	58.5	68.7	71.5	---	78.0	37.5	56.0	62.3	49.0	34.3	57.1	1,084.7
	Total		602.0	62.9	73.9	81.3	---	90.6	37.5	60.2	67.0	52.7	36.9	61.4	1,226.4
2005	Central Asia	Kazakhstan	61.6	7.1	8.3	8.6	---	9.4	4.5	6.7	7.5	5.9	4.1	6.9	130.6
		Kyrgyzstan	11.7	---	---	---	---	---	---	---	---	---	---	---	11.7
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0.0
		Turkmenistan	25.1	---	---	6.9	---	6.1	---	---	3.9	---	---	---	38.0
	Kavkaz Countries		29.4	---	---	8.2	---	7.1	---	---	---	---	---	---	44.7
	Slavic/Baltic States		814.0	93.0	109.2	113.0	---	124.2	60.0	88.9	99.1	77.5	54.6	90.8	1,725.5
	Total		937.8	100.1	117.5	137.5	---	146.8	64.5	95.6	110.5	83.8	58.7	97.7	1,950.5
2010	Central Asia	Kazakhstan	89.4	10.2	12.0	12.5	---	13.7	6.6	9.8	10.9	8.6	6.0	10.0	189.7
		Kyrgyzstan	16.6	---	---	---	---	---	---	---	---	---	---	---	16.6
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0.0
		Turkmenistan	26.0	---	3.5	6.6	---	8.7	---	---	5.7	---	4.6	---	55.1
	Kavkaz Countries		42.7	---	---	18.9	---	10.3	---	---	---	---	---	---	64.9
	Slavic/Baltic States		1,179.8	135.4	158.4	165.0	---	180.1	86.9	128.9	143.7	112.8	79.0	131.6	2,501.3
	Total		1,354.5	145.3	173.9	196.0	---	202.8	93.5	138.7	160.3	121.4	89.6	141.6	2,827.6
2015	Central Asia	Kazakhstan	122.8	14.0	16.5	17.2	---	18.7	9.0	13.4	15.0	11.7	8.2	13.7	260.2
		Kyrgyzstan	15.9	---	---	4.1	---	3.7	---	---	---	---	---	---	22.8
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0.0
		Turkmenistan	35.6	4.1	4.8	5.0	---	9.1	---	3.9	7.7	---	2.4	4.0	75.6
	Kavkaz Countries		42.0	---	---	16.3	---	14.1	---	---	9.1	---	7.5	---	89.0
	Slavic/Baltic States		1,620.6	185.4	217.5	226.7	---	247.2	119.1	177.0	197.4	155.1	108.7	180.7	3,435.4
	Total		1,936.0	203.5	238.8	269.3	---	291.8	128.1	194.3	229.2	166.8	126.8	198.4	3,883.0
2020	Central Asia	Kazakhstan	162.8	19.6	21.9	22.8	---	24.9	12.0	17.8	19.8	15.6	10.9	18.2	345.3
		Kyrgyzstan	20.0	---	---	5.5	---	4.8	---	---	---	---	---	---	30.3
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0.0
		Turkmenistan	47.2	5.4	6.3	6.6	---	7.2	3.5	5.2	5.7	4.5	3.2	5.3	100.1
	Kavkaz Countries		55.7	---	7.5	14.2	---	13.7	---	---	12.0	---	10.0	---	113.1
	Slavic/Baltic States		2,149.2	246.1	289.6	300.6	---	328.0	158.1	234.7	261.8	205.8	144.2	239.8	4,556.9
	Total		2,434.9	270.1	324.3	349.7	---	383.6	173.6	257.7	299.3	225.9	168.3	263.3	5,150.7

Table 4.2.13 Forecast of Annual Inter-CIS Air Passengers by Routes (Case 3)

('000)

Year	Direction		Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total
2000	Central Asia	Kazakhstan	30.6	3.5	4.1	4.3	---	10.2	---	---	6.6	---	5.4	---	64.7
		Kyrgystan	5.8	---	---	---	---	---	---	---	---	---	---	---	5.8
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0.0
		Turkmenistan	19.6	---	---	---	---	---	---	---	---	---	---	---	19.6
	Kavkaz Countries		22.1	---	---	---	---	---	---	---	---	---	---	---	22.1
	Slavic/Baltic States		402.7	46.2	54.1	56.4	---	81.4	29.6	44.0	49.0	38.5	27.0	44.9	553.8
	Total		479.8	49.7	58.2	60.7	---	71.6	29.6	44.0	55.6	38.5	32.4	44.9	965.0
2005	Central Asia	Kazakhstan	39.4	4.5	5.3	5.5	---	8.9	---	4.3	4.8	3.8	2.6	4.4	83.5
		Kyrgystan	7.4	---	---	---	---	---	---	---	---	---	---	---	7.4
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0.0
		Turkmenistan	16.0	---	---	4.4	---	3.8	---	---	---	---	---	---	24.2
	Kavkaz Countries		28.6	---	---	---	---	---	---	---	---	---	---	---	28.6
	Slavic/Baltic States		519.3	59.5	69.8	72.5	---	79.3	39.2	56.8	63.3	49.7	34.8	57.9	1,101.1
	Total		610.7	64.0	75.1	82.4	---	92.0	39.2	61.1	68.1	53.5	37.4	62.3	1,241.8
2010	Central Asia	Kazakhstan	48.2	5.5	6.5	6.7	---	7.9	3.5	5.3	5.9	4.6	3.2	5.4	102.7
		Kyrgystan	9.6	---	---	---	---	---	---	---	---	---	---	---	9.6
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0.0
		Turkmenistan	19.5	---	---	5.5	---	4.7	---	---	---	---	---	---	29.7
	Kavkaz Countries		35.0	---	---	---	---	---	---	---	---	---	---	---	35.0
	Slavic/Baltic States		636.0	72.8	85.3	88.9	---	97.0	45.9	69.5	77.5	60.9	42.7	70.9	1,348.4
	Total		747.7	78.3	91.8	101.1	---	109.1	50.4	74.8	83.4	65.5	45.9	76.3	1,524.8
2015	Central Asia	Kazakhstan	57.0	6.5	7.7	8.0	---	8.7	4.2	6.2	6.9	5.5	3.8	6.4	120.9
		Kyrgystan	10.6	---	---	---	---	---	---	---	---	---	---	---	10.6
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0.0
		Turkmenistan	19.4	---	---	6.4	---	5.5	---	---	3.6	---	---	---	34.9
	Kavkaz Countries		33.8	---	---	7.5	---	---	---	---	---	---	---	---	41.3
	Slavic/Baltic States		752.7	86.0	101.1	105.2	---	114.8	55.4	82.2	91.6	72.0	50.5	83.9	1,595.4
	Total		873.5	92.5	108.8	127.1	---	129.0	59.6	88.4	102.1	77.5	54.3	90.3	1,803.1
2020	Central Asia	Kazakhstan	65.8	7.5	8.8	9.2	---	10.0	4.8	7.2	8.0	6.3	4.4	7.3	139.3
		Kyrgystan	12.3	---	---	---	---	---	---	---	---	---	---	---	12.3
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0.0
		Turkmenistan	22.5	---	---	7.5	---	6.4	---	---	4.1	---	---	---	40.5
	Kavkaz Countries		31.4	---	---	8.7	---	7.7	---	---	---	---	---	---	47.8
	Slavic/Baltic States		869.4	99.4	116.6	121.6	---	132.6	64.0	95.0	105.8	83.2	58.3	97.6	1,843.9
	Total		1,008.6	106.9	125.4	147.0	---	156.7	68.8	102.2	117.9	89.5	62.7	104.9	2,082.9

4.2.5 International Air Passenger Traffic

(1) Methodology of Forecasting for Air Traffic Demand

The international air passenger traffic demand is forecast based on a regression model established by analysis of the projected future GDP of both Uzbekistan and the World.

The total demands of the international air passengers are distributed into the respective zones of the World, using the past passenger flow and the socio-economic indices of Uzbekistan. Then, the demands are finalized through checking the minimum requirements for the scheduled flight operation (refer to **Fig. 4.2.4**).

(2) International Air Passenger Demand

The following formula is established by analysis of actual statistical data for the international air passenger and GDP value from 1992 to 1996.

$$IP = (2.019) \times (GDP\_u) + (0.029) \times (GDP\_w) - (1261.74)$$

Where IP: International Passenger ('000)
GDP_u: GDP values of Uzbekistan (bil. sums)
GDP_w: GDP values of the World (bil. US$)

The results of the above forecast are shown in **Table 4.2.14**.

Table 4.2.14 Forecast of International Air Passengers in Uzbekistan

Year		1996	2000	2005	2010	2015	2020
Passengers ('000)	Case - 1	440.8	698.7	1,045.5	1,413.7	1,795.8	2,192.0
	Case - 2		716.9	1,103.3	1,534.8	2,009.7	2,533.7
	Case - 3		682.3	977.8	1,273.2	1,568.7	1,864.7

Note: These figures are embarking and disembarking passengers.

It would be desirable to use both the GDP of Uzbekistan and that of the CIS & Baltic States for Inter-CIS air passenger forecasting. However, the above formula is based on the GDP of Uzbekistan only due to insufficient and incomplete statistics for the CIS and Baltic States.

(3) Passenger Demand by Air Route

The total international passengers demand (refer to **Table 4.2.14**) is distributed to the respective zones, using the share of international passengers by directions (refer to **Table 4.2.15**).

As to the international passenger demand from the local airports, this demand is distributed into the respective provinces, by using the average shares of each province in terms of the province population, foreign trade, number of foreign visitors, and number of beds of major hotels in Uzbekistan. (refer to **Table 4.2.16**) The above zone based demand is finally determined by checking the minimum requirements for scheduled flight operation for international flights.

The international air traffic demand from the local airports is distributed by using the socio-economic indexes of each province due to the lack of data on international air passengers by provinces. Therefore, the distribution of the air traffic demand from the local airports is made by taking into account the number of foreign visitors, and number of beds of major hotels in Uzbekistan. The results are shown in **Table 4.2.17~4.2.19** for the demand related to air passengers on international services.

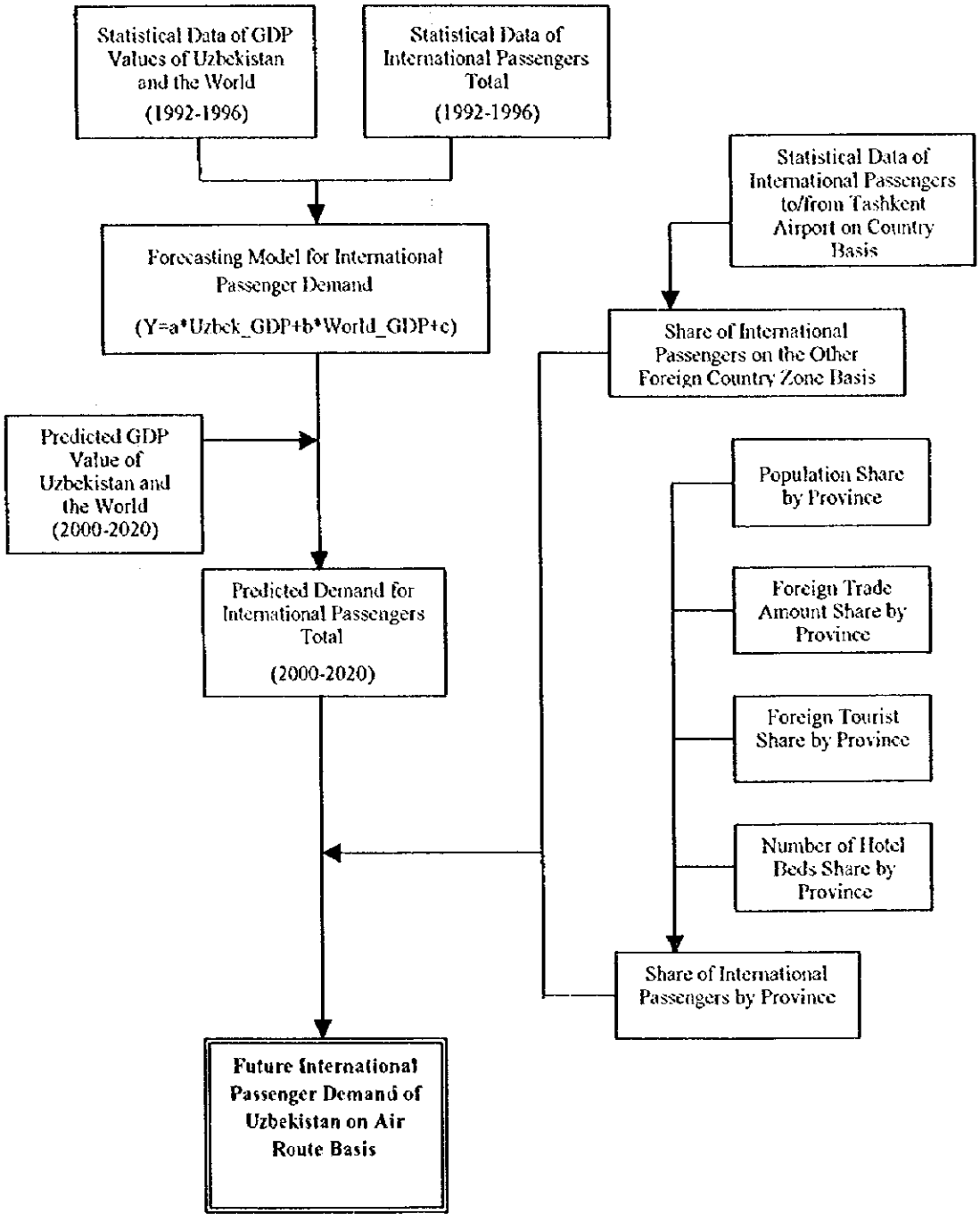


Fig. 4.2.4 Flow Diagram for Forecasting of Future International Passenger Demand

Table 4.2.15 Share of International Passengers by Directions

Region	1996
North Americ	2.89
Europe	45.29
Middle-East	19.10
A&P West	17.32
A&P Central	5.77
A&P East	8.40
Others	1.23
Total	100.00

notes : A&P = Asia and Pacific Region

Table 4.2.16 Share of International Passengers by Provinces

Province	Foreign Tourist in 1993 (%)	Num.of Beds (*) (%)	Population in 1996 (%)	Foreign Trade in 1996 (%)	Average Share (%)
Karakalpakstan	0.99	2.80	7.95	2.58	3.58
Andizhan	5.81	2.21	7.10	5.57	5.17
Bukhara	15.50	12.65	5.04	6.45	9.91
Djizhak	11.42	2.80	3.29	1.32	4.71
Kashkadarya	3.99	3.45	5.98	4.32	4.44
Navoi	1.13	0.93	3.48	5.55	2.77
Namangan	5.81	3.14	7.84	2.96	4.94
Samarkand	14.38	18.68	8.22	3.87	11.29
Surkhandarya	3.69	2.80	3.77	3.17	3.36
Tashkent	19.27	36.53	35.31	56.72	36.96
Fergana	11.87	12.70	8.52	4.68	9.44
Khorezm	6.14	1.31	3.51	2.82	3.45
Total	100.00	100.00	100.00	100.00	100.00

(*) : including planning hotels

Table 4.2.17 Forecast of Annual International Air Passengers by Directions (Case 1)

('000)

Year	Direction	Tashkent	Namangan	Andijhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total
2000	North America	20.2	---	---	---	---	---	---	---	---	---	---	---	20.2
	Europe (*)	203.7	---	---	39.2	---	42.7	---	---	25.4	---	14.0	---	325.0
	Middle East	98.9	---	---	16.6	---	19.0	---	---	---	---	---	---	133.5
	A&P West	89.7	---	---	15.0	---	16.5	---	---	---	---	---	---	121.2
	A&P Central	40.4	---	---	---	---	---	---	---	---	---	---	---	40.4
	A&P East	58.6	---	---	---	---	---	---	---	---	---	---	---	58.6
	Total	511.5	---	---	70.8	---	77.2	---	---	25.4	---	14.0	---	698.9
2005	North America	30.1	---	---	---	---	---	---	---	---	---	---	---	30.1
	Europe (*)	304.7	15.7	16.5	26.3	---	50.1	---	14.3	37.9	---	21.0	---	486.3
	Middle-East	132.0	---	---	24.7	---	27.0	---	---	16.0	---	---	---	199.7
	A&P West	119.5	---	---	22.3	---	24.6	---	---	14.6	---	---	---	181.0
	A&P Central	60.4	---	---	---	---	---	---	---	---	---	---	---	60.4
	A&P East	87.5	---	---	---	---	---	---	---	---	---	---	---	87.5
	Total	734.2	15.7	16.5	73.3	---	101.7	---	14.3	68.5	---	21.0	---	1,045.0
2010	North America	40.8	---	---	---	---	---	---	---	---	---	---	---	40.8
	Europe (*)	412.1	21.3	22.2	35.5	---	53.2	14.5	19.0	51.3	---	13.1	15.4	657.6
	Middle-East	178.7	---	---	33.3	---	36.6	---	---	21.6	---	---	---	270.2
	A&P West	161.9	---	---	30.2	---	33.2	---	---	19.6	---	---	---	244.9
	A&P Central	81.5	---	---	---	---	---	---	---	---	---	---	---	81.5
	A&P East	88.0	---	---	14.7	---	16.1	---	---	---	---	---	---	118.8
	Total	963.0	21.3	22.2	113.7	---	139.1	14.5	19.0	92.5	---	13.1	15.4	1,433.8
2015	North America	51.9	---	---	---	---	---	---	---	---	---	---	---	51.9
	Europe (*)	523.6	27.0	28.3	45.2	---	67.5	18.3	24.3	50.0	15.1	16.5	19.6	835.4
	Middle-East	211.3	---	---	42.4	---	46.4	---	---	27.5	---	15.3	---	342.5
	A&P West	205.5	---	---	38.5	---	42.1	---	---	24.9	---	---	---	211.6
	A&P Central	89.7	---	---	---	---	18.1	---	---	---	---	---	---	103.8
	A&P East	111.7	---	---	18.6	---	20.4	---	---	---	---	---	---	150.7
	Total	1,193.7	27.0	28.3	144.7	---	190.5	18.3	24.3	102.4	15.1	31.8	19.6	1,795.7
2020	North America	63.4	---	---	---	---	---	---	---	---	---	---	---	63.4
	Europe (*)	639.0	32.9	34.6	55.1	---	82.5	22.3	29.6	61.9	18.5	20.1	23.9	1,019.5
	Middle-East	258.3	---	---	51.7	---	56.7	---	---	33.5	---	18.6	---	415.8
	A&P West	234.1	---	---	44.8	---	51.4	---	---	30.3	---	16.9	---	329.5
	A&P Central	93.8	---	---	15.5	---	17.1	---	---	---	---	---	---	126.4
	A&P East	121.7	---	---	22.7	---	25.0	---	---	14.7	---	---	---	184.1
	Total	1,410.3	32.9	34.6	191.8	---	232.7	22.3	29.6	139.5	18.5	55.6	23.9	2,191.7

(note) A&P : Asia and Pacific (*) : including other regions

Table 4.2.18 Forecast of Annual International Air Passengers by Directions (Case 2)

('000)

Year	Direction	Tashkent	Namangan	Andijan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total
2000	North America	20.7	---	---	---	---	---	---	---	---	---	---	---	20.7
	Europe (*)	209.0	---	---	40.1	---	43.8	---	---	26.0	---	14.4	---	333.6
	Middle-East	101.5	---	---	16.9	---	18.6	---	---	---	---	---	---	137.6
	A&P West	92.8	---	---	15.3	---	16.9	---	---	---	---	---	---	124.0
	A&P Central	41.2	---	---	---	---	---	---	---	---	---	---	---	41.2
	A&P East	60.3	---	---	---	---	---	---	---	---	---	---	---	60.3
	Total	524.5	---	---	72.3	---	79.4	---	---	26.0	---	14.4	---	716.8
2005	North America	31.9	---	---	---	---	---	---	---	---	---	---	---	31.9
	Europe (*)	321.6	16.6	17.2	27.8	---	52.7	---	14.9	40.0	---	22.2	---	513.3
	Middle-East	139.1	---	---	26.1	---	28.6	---	---	16.9	---	---	---	210.7
	A&P West	126.3	---	---	23.6	---	25.9	---	---	15.2	---	---	---	191.0
	A&P Central	63.6	---	---	---	---	---	---	---	---	---	---	---	63.6
	A&P East	92.7	---	---	---	---	---	---	---	---	---	---	---	92.7
	Total	775.4	16.6	17.2	77.5	---	107.2	---	14.9	72.1	---	22.2	---	1,193.2
2010	North America	44.4	---	---	---	---	---	---	---	---	---	---	---	44.4
	Europe (*)	447.4	23.1	24.2	38.5	---	57.8	15.6	20.8	55.7	---	14.1	16.7	713.9
	Middle-East	193.8	---	---	36.3	---	39.7	---	---	23.5	---	---	---	293.3
	A&P West	175.7	---	---	32.9	---	36.0	---	---	21.4	---	---	---	266.0
	A&P Central	88.8	---	---	---	---	---	---	---	---	---	---	---	88.8
	A&P East	95.5	---	---	15.9	---	17.5	---	---	---	---	---	---	128.9
	Total	1,045.6	23.1	24.2	123.6	---	151.0	15.6	20.8	100.6	---	14.1	16.7	1,535.3
2015	North America	58.0	---	---	---	---	---	---	---	---	---	---	---	58.0
	Europe (*)	585.8	30.2	31.6	50.6	---	75.6	20.5	27.1	56.0	16.9	15.5	21.9	934.7
	Middle-East	236.8	---	---	47.5	---	51.8	---	---	30.8	---	17.0	---	383.9
	A&P West	214.5	---	---	43.3	---	47.1	---	---	27.9	---	15.5	---	348.1
	A&P Central	86.0	---	---	14.3	---	15.8	---	---	---	---	---	---	116.1
	A&P East	125.1	---	---	20.7	---	22.8	---	---	---	---	---	---	168.6
	Total	1,306.2	30.2	31.6	176.2	---	213.1	20.5	27.1	114.7	16.9	53.0	21.9	2,009.4
2020	North America	73.1	---	---	---	---	---	---	---	---	---	---	---	73.1
	Europe (*)	739.8	38.1	39.9	63.7	---	95.3	25.9	34.1	70.5	21.4	23.3	27.6	1,179.6
	Middle-East	298.5	15.1	15.8	28.9	---	65.5	---	---	38.8	---	21.4	---	484.0
	A&P West	270.7	---	14.3	39.8	---	59.5	---	---	35.2	---	19.8	---	439.9
	A&P Central	108.5	---	---	18.0	---	19.8	---	---	---	---	---	---	146.3
	A&P East	139.6	---	---	26.2	---	28.8	---	---	17.0	---	---	---	212.6
	Total	1,630.2	53.2	70.0	176.6	---	268.9	25.9	34.1	161.5	21.4	64.1	27.6	2,533.5

(note) A&P : Asia and Pacific (*) : including other regions

Table 4.2.19 Forecast of Annual International Air Passengers by Directions (Case 3) ('000)

Year	Direction	Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total
2000	North America	19.8	---	---	---	---	---	---	---	---	---	---	---	19.8
	Europe (*)	212.6	---	---	38.2	---	41.9	---	---	24.7	---	---	---	317.4
	Middle-East	96.5	---	---	16.0	---	17.8	---	---	---	---	---	---	130.3
	A&P West	87.5	---	---	14.7	---	16.0	---	---	---	---	---	---	118.2
	A&P Central	39.3	---	---	---	---	---	---	---	---	---	---	---	39.3
	A&P East	57.3	---	---	---	---	---	---	---	---	---	---	---	57.3
	Total	513.0	---	---	68.9	---	75.7	---	---	24.7	---	---	---	682.3
2005	North America	28.3	---	---	---	---	---	---	---	---	---	---	---	28.3
	Europe (*)	254.9	14.7	15.4	24.6	---	60.0	---	---	35.5	---	19.7	---	454.8
	Middle-East	123.5	---	---	23.0	---	25.3	---	---	35.0	---	---	---	156.8
	A&P West	125.5	---	---	21.0	---	23.0	---	---	---	---	---	---	169.5
	A&P Central	56.5	---	---	---	---	---	---	---	---	---	---	---	56.5
	A&P East	82.1	---	---	---	---	---	---	---	---	---	---	---	82.1
	Total	700.8	14.7	15.4	68.6	---	108.3	---	---	50.5	---	19.7	---	978.0
2010	North America	36.6	---	---	---	---	---	---	---	---	---	---	---	36.6
	Europe (*)	371.1	19.1	20.0	32.1	---	61.0	---	17.2	46.2	---	25.6	---	592.3
	Middle-East	160.8	---	---	30.1	---	33.0	---	---	19.4	---	---	---	243.3
	A&P West	145.8	---	---	27.2	---	29.9	---	---	17.7	---	---	---	220.6
	A&P Central	73.5	---	---	---	---	---	---	---	---	---	---	---	73.5
	A&P East	92.4	---	---	---	---	14.5	---	---	---	---	---	---	106.9
	Total	830.2	19.1	20.0	89.4	---	138.4	---	17.2	83.3	---	25.6	---	1,273.2
2015	North America	45.2	---	---	---	---	---	---	---	---	---	---	---	45.2
	Europe (*)	457.4	23.6	24.7	39.5	---	59.1	15.9	21.2	56.9	---	14.5	17.0	729.8
	Middle-East	198.0	---	---	37.0	---	40.6	---	---	24.0	---	---	---	299.6
	A&P West	179.7	---	---	33.6	---	36.8	---	---	21.7	---	---	---	271.8
	A&P Central	90.5	---	---	---	---	---	---	---	---	---	---	---	90.5
	A&P East	97.6	---	---	16.2	---	17.9	---	---	---	---	---	---	131.7
	Total	1,068.4	23.6	24.7	126.3	---	154.4	15.9	21.2	102.6	---	14.5	17.0	1,568.6
2020	North America	53.9	---	---	---	---	---	---	---	---	---	---	---	53.9
	Europe (*)	543.5	28.0	29.4	46.8	---	70.2	19.0	25.1	52.0	15.7	17.2	20.3	867.2
	Middle-East	219.6	---	---	43.9	---	48.3	---	---	28.6	---	15.8	---	356.2
	A&P West	199.2	---	---	39.8	---	43.6	---	---	25.8	---	13.3	---	322.7
	A&P Central	93.3	---	---	---	---	14.5	---	---	---	---	---	---	107.8
	A&P East	116.0	---	---	19.3	---	21.3	---	---	---	---	---	---	156.6
	Total	1,225.5	28.0	29.4	149.8	---	197.9	19.0	25.1	106.4	15.7	47.3	20.3	1,864.4

(note) A&P : Asia and Pacific (*) : including other regions

4.2.6 Domestic Air Cargo Traffic

(1) Methodology of Forecasting for Air Traffic Demand

The demand for the domestic air cargo traffic is forecast with a regression model explaining the domestic air cargo demand by GDP as the variable.

As the air cargo is mainly transported in the belly of passenger aircraft, the total demands for the domestic air cargo are distributed into the respective air route using the composition rates of the projected domestic air passenger by air route.

The domestic air cargo demand is forecast for the air routes only served by the scheduled flights for domestic passengers. (refer to **Fig. 4.2.5**).

(2) Nationwide Air Cargo Demand

The following formula is established by analysis of the past statistical data for the domestic air cargo and GDP value from 1992 to 1996.

DC = (6.490) x (GDP) – (3347.78)

Where DC: Domestic Cargo (tons)
GDP: GDP value of Uzbekistan (bil. sums)

The results of the above forecasting are shown in **Table 4.2.20**.

Table 4.2.20 Forecast of Domestic Air Cargo in Uzbekistan

Year		1996	2000	2005	2010	2015	2020
Cargo (tons)	Case – 1	302	904	1,753	2,668	3,642	4,669
	Case – 2		1,008	2,119	3,466	5,088	7,032
	Case – 3		691	1,182	1,673	2,164	2,654

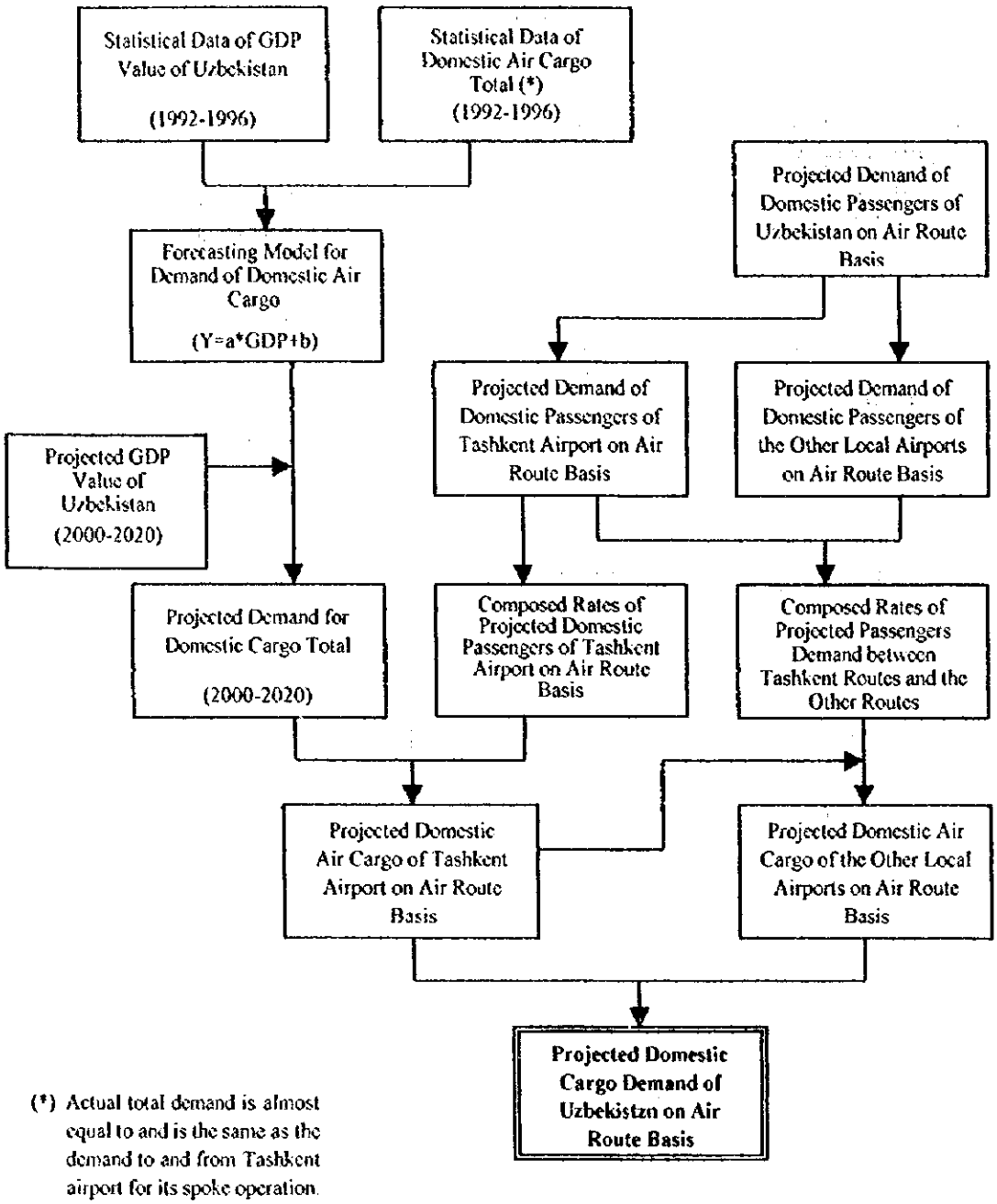
Note: These figures are inbound and outbound cargo.

As explained in the domestic passenger forecast, the above demand is considered to be the cargo demands at Tashkent airport. Therefore, cargo demands between the local airports should be forecast separately.

(3) Air Cargo Demand by Air Route

The total demand (refer to **Table 4.2.24**) for the domestic air cargo is distributed to the respective air routes, by using the composition rates of the passenger demands by air route already mentioned.

The domestic air cargo demands are shown in **Table 4.2.21~4.2.23**.



(*) Actual total demand is almost equal to and is the same as the demand to and from Tashkent airport for its spoke operation.

Fig. 4.2.5 Flow Diagram for Forecasting of Domestic Air Cargo Demand

Table 4.2.21 Forecast of Annual Domestic Air Cargo by Airport Pairs (Case I)

(tons)

Year	Airport	Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total(*)
2000	Tashkent		59	107	102	17	62	96	54	83	29	113	87	901
	Namangan	59		---	---	---	36	37	---	53	---	45	28	243
	Andizhan	107	---		---	---	72	58	47	53	---	74	43	455
	Fergana	102	---	---		---	59	59	49	55	---	76	45	435
	Kokand	17	---	---	---		---	---	---	---	---	---	---	17
	Samarkand	62	36	72	59	---		---	---	---	---	---	---	229
	Termez	96	37	58	59	---	---		---	---	---	---	---	249
	Karshi	54	---	47	40	---	---	---		---	---	---	---	141
	Bukhara	83	53	53	55	---	---	---	---		---	---	---	227
	Navoi	29	---	---	---	---	---	---	---	---		---	---	29
	Urgench	113	45	74	76	---	---	---	---	---	---		---	310
	Nukus	87	28	43	43	---	---	---	---	---	---	---		202
	others	66	---	---	---	---	---	---	---	---	---	---	---	66
	Total	904	243	455	435	17	229	249	112	227	29	343	202	3,536
2005	Tashkent		335	206	191	32	120	190	107	161	55	279	167	1,753
	Namangan	335		---	---	---	73	77	52	70	---	99	58	514
	Andizhan	206	---		---	---	155	119	97	109	38	150	87	961
	Fergana	191	---	---		---	127	120	82	110	---	153	89	867
	Kokand	32	---	---	---		---	---	---	---	---	---	---	32
	Samarkand	120	73	155	127	---		---	---	---	---	50	---	505
	Termez	190	77	119	120	---	---		---	---	---	---	---	506
	Karshi	107	52	97	82	---	---	---		---	---	---	---	339
	Bukhara	161	70	109	110	---	---	---	---		---	---	---	450
	Navoi	55	---	45	---	---	---	---	---	---		---	---	103
	Urgench	229	99	150	153	---	50	---	---	---	---		---	731
	Nukus	167	55	87	89	---	---	---	---	---	---	---		401
	others	128	---	---	---	---	---	---	---	---	---	---	---	128
	Total	1,753	511	961	867	32	505	506	339	450	102	731	401	7,319
2010	Tashkent		176	311	292	48	180	291	156	243	83	426	251	2,665
	Namangan	176		---	---	---	116	125	81	111	---	159	92	863
	Andizhan	311	---		---	---	227	190	155	171	26	238	137	1,506
	Fergana	292	---	---		---	183	192	131	172	61	242	140	1,417
	Kokand	48	---	---	---		---	---	---	---	---	---	---	45
	Samarkand	180	116	227	183	---		---	---	---	---	80	---	786
	Termez	291	125	190	192	---	---		---	---	---	66	---	867
	Karshi	166	81	155	131	---	---	---		---	---	---	---	537
	Bukhara	243	111	171	172	---	---	---	---		---	---	---	608
	Navoi	83	---	26	61	---	---	---	---	---		---	---	223
	Urgench	426	159	238	242	---	80	66	---	---	---		---	1,210
	Nukus	254	92	137	140	---	---	---	---	---	---	---		624
	others	195	---	---	---	---	---	---	---	---	---	---	---	195
	Total	2,665	863	1,506	1,417	48	786	867	537	698	223	1,210	624	11,641
2015	Tashkent		246	422	395	64	245	407	229	331	112	554	342	3,642
	Namangan	246		---	---	---	159	190	122	155	---	227	131	1,221
	Andizhan	422	---		---	---	317	272	222	241	106	338	193	2,111
	Fergana	395	---	---		---	255	274	187	241	90	342	197	1,979
	Kokand	64	---	---	---		---	---	---	---	---	74	---	139
	Samarkand	245	159	317	255	---		---	---	---	---	133	---	1,093
	Termez	407	190	272	274	---	---		---	---	---	95	---	1,228
	Karshi	229	122	222	187	---	---	---		---	---	---	---	760
	Bukhara	331	155	241	241	---	---	---	---		---	---	---	971
	Navoi	112	---	106	90	---	---	---	---	---		---	---	308
	Urgench	581	227	338	342	74	113	95	---	---	---		---	1,771
	Nukus	347	131	193	197	---	---	---	---	---	---	---		867
	others	266	---	---	---	---	---	---	---	---	---	---	---	266
	Total	3,642	1,221	2,111	1,979	139	1,093	1,228	760	971	308	1,771	867	16,355
2020	Tashkent		309	538	501	82	312	528	297	423	143	751	444	4,669
	Namangan	309		---	---	---	217	242	161	209	---	302	174	1,617
	Andizhan	538	---		---	---	416	363	296	317	139	447	255	2,771
	Fergana	501	---	---		---	334	364	249	316	117	451	258	2,590
	Kokand	82	---	---	---		---	---	---	---	---	98	---	181
	Samarkand	312	217	416	333	---		---	---	---	---	150	93	1,521
	Termez	528	242	363	364	---	---		---	---	---	129	---	1,625
	Karshi	297	161	296	249	---	---	---		---	---	---	---	1,095
	Bukhara	423	209	317	316	---	---	---	---		---	---	---	1,266
	Navoi	143	---	139	117	---	---	---	---	---		---	---	399
	Urgench	751	302	447	451	93	150	129	---	---	---		---	2,326
	Nukus	444	174	255	258	---	93	---	---	---	---	---		1,224
	others	342	---	---	---	---	---	---	---	---	---	---	---	342
	Total	4,669	1,617	2,771	2,590	180	1,521	1,625	1,095	1,266	399	2,326	1,224	21,535

(*) : excluding other airports

Table 4.2.22 Forecast of Annual Domestic Air Cargo by Airport Pairs (Case 2)

(tons)

Year	Airport	Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total(*)
2000	Tashkent		66	120	113	19	69	107	61	93	32	159	96	1,008
	Namangan	66	---	---	---	---	40	41	---	35	---	54	34	270
	Andizhan	120	---		---	---	81	64	55	60	---	92	45	507
	Fergana	113	---	---		---	66	65	45	61	---	84	50	484
	Kokand	19	---	---	---		---	---	---	---	---	---	---	19
	Samarkand	69	40	81	66	---		---	---	---	---	---	---	256
	Termez	107	41	61	65	---	---		---	---	---	---	---	275
	Karshi	61	---	53	45	---	---	---		---	---	---	---	158
	Bukhara	93	35	60	61	---	---	---	---		---	---	---	250
	Navoi	32	---	---	---	---	---	---	---	---		---	---	32
	Urgench	159	54	92	84	---	---	---	---	---	---		---	389
	Nukus	96	34	45	50	---	---	---	---	---	---	---		225
	others	23	---	---	---	---	---	---	---	---	---	---	---	23
	Total	1,008	270	507	484	19	256	278	155	253	32	389	225	3,981
2005	Tashkent		139	219	235	38	145	230	130	191	66	337	202	2,319
	Namangan	139		---	---	---	89	93	63	85	---	120	70	657
	Andizhan	219	---		---	---	175	183	117	132	59	182	105	1,161
	Fergana	235	---	---		---	142	145	100	133	---	185	108	1,047
	Kokand	38	---	---	---		---	---	---	---	---	---	---	38
	Samarkand	145	89	175	142	---		---	---	---	---	61	---	611
	Termez	230	93	183	145	---	---		---	---	---	---	---	612
	Karshi	130	63	117	100	---	---	---		---	---	---	---	410
	Bukhara	191	85	132	133	---	---	---	---		---	---	---	543
	Navoi	66	---	59	---	---	---	---	---	---		---	---	125
	Urgench	337	120	182	185	---	61	---	---	---	---		---	884
	Nukus	202	70	105	108	---	---	---	---	---	---	---		485
	others	159	---	---	---	---	---	---	---	---	---	---	---	159
	Total	2,119	657	1,161	1,047	38	611	612	410	543	125	884	485	8,847
2010	Tashkent		228	404	379	62	231	383	215	316	107	553	331	3,466
	Namangan	228		---	---	---	151	162	110	145	---	206	120	1,321
	Andizhan	404	---		---	---	291	247	202	223	98	310	178	1,956
	Fergana	379	---	---		---	238	250	171	224	64	314	182	1,841
	Kokand	62	---	---	---		---	---	---	---	---	---	---	62
	Samarkand	231	151	291	238	---		---	---	---	---	104	---	1,021
	Termez	383	162	247	250	---	---		---	---	---	85	---	1,127
	Karshi	215	110	202	171	---	---	---		---	---	---	---	698
	Bukhara	316	185	223	224	---	---	---	---		---	---	---	907
	Navoi	107	---	98	84	---	---	---	---	---		---	---	289
	Urgench	553	206	310	314	---	104	85	---	---	---		---	1,572
	Nukus	331	120	178	182	---	---	---	---	---	---	---		810
	others	253	---	---	---	---	---	---	---	---	---	---	---	253
	Total	3,466	1,321	1,956	1,841	62	1,021	1,127	698	907	289	1,572	810	15,123
2015	Tashkent		336	589	551	90	342	569	320	463	157	815	485	5,089
	Namangan	336		---	---	---	229	252	170	223	---	337	193	1,706
	Andizhan	589	---		---	---	433	380	310	337	148	472	270	2,949
	Fergana	551	---	---		---	356	382	261	337	125	477	275	2,765
	Kokand	90	---	---	---		---	---	---	---	---	104	---	194
	Samarkand	342	229	433	356	---		84	---	---	---	158	99	1,731
	Termez	569	252	380	382	---	84		---	---	---	132	---	1,806
	Karshi	320	170	310	261	---	---	---		---	---	---	---	1,061
	Bukhara	463	221	337	337	---	---	---	---		---	---	---	1,357
	Navoi	157	---	148	125	---	---	---	---	---		---	---	430
	Urgench	815	317	472	477	104	158	132	---	---	---		---	2,474
	Nukus	485	383	270	275	---	99	---	---	---	---	---		1,511
	others	372	---	---	---	---	---	---	---	---	---	---	---	372
	Total	5,089	1,706	2,949	2,765	194	1,731	1,806	1,061	1,357	430	2,474	1,311	23,215
2020	Tashkent		465	816	765	123	469	796	447	637	215	1,131	665	7,032
	Namangan	465		---	---	---	327	365	246	315	116	455	262	2,551
	Andizhan	816	---		---	---	627	547	446	477	209	673	381	4,497
	Fergana	765	---	---		---	502	549	374	476	172	679	389	4,209
	Kokand	123	---	---	---		114	115	---	99	---	117	---	598
	Samarkand	469	327	627	502	114		121	---	---	---	226	141	2,525
	Termez	796	365	547	549	115	121		---	101	---	192	115	2,900
	Karshi	447	246	446	374	---	---	---		---	---	105	---	1,619
	Bukhara	637	315	477	476	99	---	101	---		---	---	---	2,106
	Navoi	215	116	209	177	---	---	---	---	---		---	---	717
	Urgench	1,131	455	673	679	117	226	192	105	---	---		---	3,608
	Nukus	669	262	381	389	---	141	115	---	---	---	---		1,959
	others	515	---	324	308	---	---	---	---	---	---	---	---	1,148
	Total	7,032	2,551	4,497	4,209	598	2,525	2,900	1,619	2,106	717	3,608	1,959	35,468

(*) : including other airports

Table 4.2.23 Forecast of Annual Domestic Air Cargo by Airport Pairs (Case 3) (tons)

Year	Airport	Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total(*)
2000	Tashkent		45	82	78	13	48	78	42	68	22	109	66	691
	Namangan	45		---	---	---	29	29	---	26	---	37	---	161
	Andizhan	82	---		---	---	55	44	36	41	---	52	33	343
	Fergana	78	---	---		---	45	45	31	42	---	58	31	332
	Kokand	13	---	---	---		---	---	---	---	---	---	---	13
	Samarkand	48	28	53	45	---		---	---	---	---	---	---	175
	Termez	78	28	44	45	---	---		---	---	---	---	---	195
	Karshi	42	---	36	31	---	---	---		---	---	---	---	105
	Bukhara	64	26	41	42	---	---	---	---		---	---	---	173
	Navoi	22	---	---	---	---	---	---	---	---		---	---	22
	Urgench	109	37	52	58	---	---	---	---	---	---		---	260
	Nukus	66	---	33	34	---	---	---	---	---	---	---		133
	others	50	---	---	---	---	---	---	---	---	---	---	---	50
	Total	694	163	349	332	13	175	195	108	173	22	266	133	2,661
2005	Tashkent		78	139	131	21	81	128	72	108	37	138	133	1,182
	Namangan	78		---	---	---	49	52	---	47	---	67	39	332
	Andizhan	139	---		---	---	99	80	65	74	---	101	59	615
	Fergana	131	---	---		---	79	81	56	74	---	103	60	581
	Kokand	21	---	---	---		---	---	---	---	---	---	---	21
	Samarkand	81	49	98	79	---		---	---	---	---	---	---	307
	Termez	128	52	80	81	---	---		---	---	---	---	---	341
	Karshi	72	---	65	56	---	---	---		---	---	---	---	193
	Bukhara	108	47	74	74	---	---	---	---		---	---	---	303
	Navoi	37	---	---	---	---	---	---	---	---		---	---	37
	Urgench	188	67	101	103	---	---	---	---	---	---		---	459
	Nukus	113	39	59	60	---	---	---	---	---	---	---		271
	others	86	---	---	---	---	---	---	---	---	---	---	---	86
	Total	1,182	332	615	584	21	307	341	193	303	37	459	271	4,732
2010	Tashkent		110	195	183	30	113	185	104	153	52	267	160	1,673
	Namangan	110		---	---	---	73	78	53	70	---	99	58	541
	Andizhan	195	---		---	---	142	119	92	108	48	150	86	944
	Fergana	183	---	---		---	115	121	82	108	---	152	88	849
	Kokand	30	---	---	---		---	---	---	---	---	---	---	30
	Samarkand	113	73	142	115	---		---	---	---	---	50	---	493
	Termez	185	78	119	121	---	---		---	---	---	---	---	503
	Karshi	104	53	92	82	---	---	---		---	---	---	---	337
	Bukhara	153	70	108	108	---	---	---	---		---	---	---	428
	Navoi	52	---	43	---	---	---	---	---	---		---	---	99
	Urgench	267	99	150	152	---	50	---	---	---	---		---	718
	Nukus	160	58	86	86	---	---	---	---	---	---	---		391
	others	122	---	---	---	---	---	---	---	---	---	---	---	122
	Total	1,673	541	944	849	30	493	503	337	438	99	718	391	7,137
2015	Tashkent		143	251	234	38	145	242	136	197	67	347	206	2,164
	Namangan	143		---	---	---	93	107	72	94	---	135	78	725
	Andizhan	251	---		---	---	189	162	122	143	63	201	115	1,254
	Fergana	234	---	---		---	152	163	111	143	---	203	117	1,123
	Kokand	38	---	---	---		---	---	---	---	---	---	---	38
	Samarkand	145	97	189	152	---		---	---	---	---	67	---	659
	Termez	242	107	162	162	---	---		---	---	---	56	---	729
	Karshi	136	72	122	111	---	---	---		---	---	---	---	453
	Bukhara	197	94	143	143	---	---	---	---		---	---	---	577
	Navoi	67	---	63	---	---	---	---	---	---		---	---	130
	Urgench	347	135	201	203	---	67	56	---	---	---		---	1,008
	Nukus	206	78	115	117	---	---	---	---	---	---	---		515
	others	158	---	---	---	---	---	---	---	---	---	---	---	158
	Total	2,164	725	1,251	1,123	38	650	729	451	577	130	1,008	515	9,522
2020	Tashkent		176	306	285	47	172	300	169	241	81	427	253	2,651
	Namangan	176		---	---	---	123	139	93	119	---	172	99	939
	Andizhan	306	---		---	---	237	266	168	180	79	251	145	1,525
	Fergana	285	---	---		---	190	202	141	180	67	256	147	1,472
	Kokand	47	---	---	---		---	---	---	---	---	---	---	47
	Samarkand	177	123	237	190	---		---	---	---	---	85	---	812
	Termez	300	139	206	207	---	---		---	---	---	73	---	924
	Karshi	169	93	168	141	---	---	---		---	---	---	---	571
	Bukhara	241	119	180	180	---	---	---	---		---	---	---	720
	Navoi	81	---	79	67	---	---	---	---	---		---	---	227
	Urgench	427	172	251	256	---	85	73	---	---	---		---	1,267
	Nukus	253	99	145	117	---	---	---	---	---	---	---		643
	others	195	---	---	---	---	---	---	---	---	---	---	---	195
	Total	2,651	939	1,575	1,472	47	812	924	571	720	227	1,267	643	12,024

(*) : including other airports

4.2.7 Inter-CIS Air Cargo Traffic

(1) Methodology of Forecasting for Air Traffic Demand

The Inter-CIS air cargo traffic demand is forecast, by analysis a regression model established on the basis of the past statistical data for the total air cargo for the Inter-CIS states and the past records of GDP value after the independence.

The total Inter-CIS air cargo demand is distributed to the respective air routes, in accordance with the composition rates for the passenger demand for the Inter-CIS routes.

The air cargo demand is forecast for the air routes served only by scheduled passenger flights, except for the air routes to and from Namangan airport where a cargo terminal building is under construction (refer to **Fig. 4.2.6**).

(2) Air Cargo Demand for Inter-CIS

The following formula is established by analysis of the actual statistical data for the air cargo of the inter-CIS and GDP value from 1992 to 1996.

$CC = (50.4172) \times (GDP) - (22188.61)$

Where CC: Inter-CIS Cargo (tons)
GDP: GDP value of Uzbekistan (bil. sums)

The results of the above forecast are shown in **Table 4.2.24**.

Table 4.2.24 Forecast of Inter-CIS Air Cargo in Uzbekistan

Year		1996	2000	2005	2010	2015	2020
Cargo (tons)	Case – 1	6,034	10,904	17,503	24,575	32,108	40,052
	Case – 2		12,039	20,988	31,830	44,890	60,546
	Case – 3		8,894	12,388	15,881	19,375	22,869

Note: These figures are only outbound cargo total.

The only explanatory variable for the formula is the GDP of Uzbekistan due to the lack of available data regarding the air cargo volume by route.

(3) Air Cargo Demand on Air Route Basis

The total Inter-CIS air cargo demand (refer to **Table 4.2.24**) is distributed to the respective air routes using the composition rates for the passenger demand for the routes already mentioned.

The results are shown in **Table 4.2.25~4.2.27** for air cargo of Inter-CIS service demand.

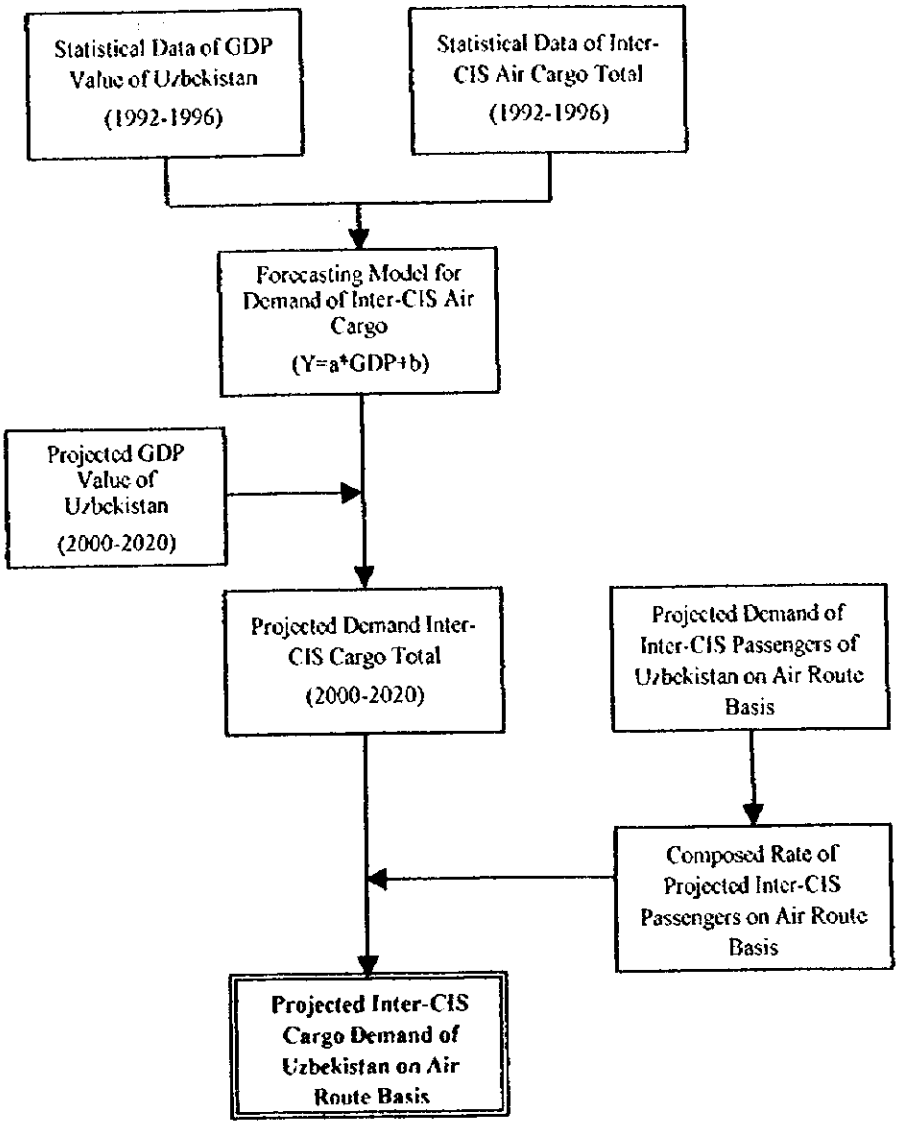


Fig. 4.2.6 Flow Diagram for Forecasting of Inter-CIS Air Cargo Demand

Table 4.2.25 Forecast of Annual Inter-CIS Air Cargo by Directions (Case 1)

(tons)

Year	Direction		Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total
2000	Central Asia	Kazakhstan	120	9	18	29	---	21	---	29	37	---	10	7	271
		Kyrgystan	6	0	---	---	---	---	---	---	---	---	---	---	6
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0
		Turkmenistan	18	1	---	5	---	4	---	---	---	---	---	---	29
	Kavkaz Countries		78	3	---	---	---	---	---	---	---	---	---	---	81
	Slavic Baltic States		4,696	354	711	1,127	---	495	311	784	576	855	372	285	10,555
	Total		4,908	367	729	1,161	---	520	311	804	613	855	381	292	10,941
2005	Central Asia	Kazakhstan	192	15	29	46	---	20	13	32	24	35	15	12	433
		Kyrgystan	9	0	---	---	---	---	---	---	---	---	---	---	9
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0
		Turkmenistan	29	2	---	8	---	7	---	---	---	---	---	---	46
	Kavkaz Countries		103	4	---	23	---	---	---	---	---	---	---	---	130
	Slavic Baltic States		7,496	567	1,137	1,803	---	792	497	1,251	921	1,369	593	455	16,885
	Total		7,830	597	1,166	1,880	---	819	510	1,286	945	1,404	609	467	17,503
2010	Central Asia	Kazakhstan	270	20	41	65	---	29	18	45	33	49	21	16	608
		Kyrgystan	13	0	---	---	---	---	---	---	---	---	---	---	13
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0
		Turkmenistan	29	2	---	11	---	10	---	---	9	---	4	---	64
	Kavkaz Countries		116	6	---	32	---	28	---	---	---	---	---	---	182
	Slavic Baltic States		10,525	796	1,596	2,532	---	1,112	698	1,761	1,293	1,922	833	639	23,709
	Total		10,553	825	1,637	2,640	---	1,178	716	1,806	1,335	1,971	860	655	24,575
2015	Central Asia	Kazakhstan	353	27	54	85	---	37	23	59	43	64	28	21	794
		Kyrgystan	17	1	---	---	---	---	---	---	---	---	---	---	17
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0
		Turkmenistan	33	3	6	9	---	13	---	---	11	---	5	---	81
	Kavkaz Countries		152	8	---	42	---	36	---	---	---	---	---	---	238
	Slavic Baltic States		13,751	1,030	2,086	3,308	---	1,453	911	2,301	1,690	2,510	1,090	835	30,925
	Total		14,310	1,078	2,145	3,444	---	1,538	935	2,360	1,744	2,575	1,124	856	32,198
2020	Central Asia	Kazakhstan	440	33	67	106	---	47	29	74	54	80	35	27	991
		Kyrgystan	17	1	---	4	---	---	---	---	---	---	---	---	22
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0
		Turkmenistan	46	4	7	11	---	8	---	8	14	---	4	3	105
	Kavkaz Countries		150	10	---	52	---	45	---	---	40	---	---	---	296
	Slavic Baltic States		17,354	1,297	2,603	4,127	---	1,812	1,137	2,870	2,108	3,132	1,360	1,012	38,639
	Total		17,807	1,343	2,675	4,299	---	1,911	1,166	2,952	2,216	3,212	1,398	1,042	40,052

Table 4.2.26 Forecast of Annual Inter-CIS Air Cargo by Directions (Case 2)

(tons)

Year	Direction		Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total
2000	Central Asia	Kazakhstan	132	10	20	32	---	23	---	22	16	24	11	8	298
		Kyrgystan	6	0	---	---	---	---	---	---	---	---	---	---	7
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0
		Turkmenistan	20	1	---	6	---	5	---	---	---	---	---	---	31
	Kavkaz Countries		86	3	---	---	---	---	---	---	---	---	---	---	89
	Slavic Baltic States		5,156	390	782	1,241	---	545	342	863	634	932	409	313	11,615
	Total		5,401	404	802	1,278	---	572	342	885	650	966	419	321	12,039
2005	Central Asia	Kazakhstan	231	17	35	56	---	24	15	39	28	42	18	14	519
		Kyrgystan	11	0	---	---	---	---	---	---	---	---	---	---	11
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0
		Turkmenistan	28	2	---	10	---	8	---	---	7	---	---	---	55
	Kavkaz Countries		100	5	---	27	---	23	---	---	---	---	---	---	156
	Slavic Baltic States		8,989	680	1,363	2,163	---	950	596	1,504	1,105	1,611	713	546	20,248
	Total		9,358	705	1,398	2,255	---	1,006	611	1,543	1,140	1,653	731	560	20,989
2010	Central Asia	Kazakhstan	350	26	53	84	---	37	23	59	43	64	28	21	787
		Kyrgystan	17	1	---	---	---	---	---	---	---	---	---	---	17
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0
		Turkmenistan	37	3	6	9	---	13	---	---	11	---	5	---	83
	Kavkaz Countries		151	8	---	41	---	35	---	---	---	---	---	---	236
	Slavic Baltic States		13,632	1,031	2,067	3,280	---	1,410	901	2,281	1,675	2,492	1,081	829	30,707
	Total		14,186	1,068	2,126	3,414	---	1,525	927	2,339	1,729	2,553	1,114	849	31,830
2015	Central Asia	Kazakhstan	493	37	75	119	---	52	33	83	61	90	39	30	1,111
		Kyrgystan	15	1	---	4	---	4	---	---	---	---	---	---	24
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0
		Turkmenistan	52	4	8	13	---	9	---	9	16	---	4	3	117
	Kavkaz Countries		148	11	---	58	---	50	---	---	45	---	21	---	332
	Slavic Baltic States		19,225	1,454	2,936	4,625	---	2,031	1,274	3,217	2,562	3,510	1,524	1,167	43,305
	Total		19,933	1,507	2,998	4,819	---	2,136	1,307	3,308	2,491	3,600	1,589	1,200	44,887
2020	Central Asia	Kazakhstan	665	50	101	160	---	70	43	111	82	121	53	40	1,495
		Kyrgystan	21	1	---	5	---	5	---	---	---	---	---	---	33
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0
		Turkmenistan	70	5	11	17	---	7	5	12	9	13	6	4	158
	Kavkaz Countries		199	15	30	43	---	68	---	---	61	---	28	---	445
	Slavic Baltic States		25,931	1,961	3,933	6,238	---	2,739	1,719	4,339	3,186	4,734	2,056	1,574	58,409
	Total		26,886	2,032	4,074	6,469	---	2,889	1,768	4,462	3,337	4,868	2,142	1,619	60,546

Table 4.2.27 Forecast of Annual Inter-CIS Air Cargo by Directions (Case 3)

(tons)

Year	Direction		Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total
2000	Central Asia	Kazakhstan	98	7	15	21	---	33	---	---	30	---	11	---	225
		Kyrgyzstan	5	0	---	---	---	---	---	---	---	---	---	---	5
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0
		Turkmenistan	23	1	---	---	---	---	---	---	---	---	---	---	25
	Kavkaz Countries		64	2	---	---	---	---	---	---	---	---	---	---	66
	Slavic Baltic States		3,809	288	578	916	---	402	253	637	368	695	302	231	8,551
	Total		3,998	297	593	937	---	436	253	637	428	695	316	231	8,871
2005	Central Asia	Kazakhstan	138	10	21	33	---	23	---	23	17	25	11	8	336
		Kyrgyzstan	6	0	---	---	---	---	---	---	---	---	---	---	-
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0
		Turkmenistan	21	1	---	6	---	5	---	---	---	---	---	---	33
	Kavkaz Countries		89	3	---	---	---	---	---	---	---	---	---	---	92
	Slavic Baltic States		5,303	401	805	1,276	---	560	352	886	652	969	421	322	11,951
	Total		5,552	416	825	1,315	---	589	352	911	669	994	433	330	12,388
2010	Central Asia	Kazakhstan	174	13	27	42	---	19	12	29	21	32	14	11	393
		Kyrgyzstan	8	0	---	---	---	---	---	---	---	---	---	---	9
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0
		Turkmenistan	27	1	---	7	---	6	---	---	---	---	---	---	42
	Kavkaz Countries		114	4	---	---	---	---	---	---	---	---	---	---	119
	Slavic Baltic States		6,802	514	1,032	1,636	---	719	451	1,139	836	1,242	539	413	15,321
	Total		7,125	533	1,058	1,686	---	743	463	1,167	857	1,274	553	424	15,852
2015	Central Asia	Kazakhstan	213	16	32	51	---	23	14	36	26	39	17	13	479
		Kyrgyzstan	10	0	---	---	---	---	---	---	---	---	---	---	10
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0
		Turkmenistan	26	2	---	9	---	8	---	---	7	---	---	---	51
	Kavkaz Countries		119	5	---	25	---	---	---	---	---	---	---	---	144
	Slavic Baltic States		8,298	627	1,258	1,996	---	877	550	1,388	1,020	1,515	658	504	18,691
	Total		8,660	650	1,291	2,081	---	907	564	1,424	1,053	1,551	675	517	19,375
2020	Central Asia	Kazakhstan	251	19	38	60	---	27	17	42	31	46	20	15	566
		Kyrgyzstan	12	0	---	---	---	---	---	---	---	---	---	---	12
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	0
		Turkmenistan	30	2	---	10	---	9	---	---	8	---	---	---	69
	Kavkaz Countries		309	6	---	30	---	26	---	---	---	---	---	---	169
	Slavic Baltic States		9,794	741	1,485	2,356	---	1,035	649	1,639	1,204	1,788	776	595	22,062
	Total		10,196	768	1,524	2,457	---	1,096	666	1,681	1,243	1,834	796	610	22,869

4.2.8 International Air Cargo Traffic

(1) Methodology of Forecasting for Air Traffic Demand

The international air cargo demand is forecast by establishing a regression model established from the actual statistical data of total international air cargo and the past records of GDP value after independence.

The total international cargo demand is distributed to the respective air routes using the composition rates for the projected international air passenger flow by air routes.

In case of Namangan airport, the air cargo demand by air route is forecast without considering the minimum requirement for scheduled flight operation. (refer to **Fig. 4.2.7**).

(2) International Air Cargo Demand

The following formula is established by analysis of the actual statistical data for international air cargo and GDP value from 1992 to 1996.

$IC = (71.352) \times (GDP\_u) + (1.134) \times (GDP\_w) - (48792.64)$

Where IC: International Cargo (tons)
GDP_u: GDP value of Uzbekistan (bil. sums)
GDP_w: GDP value of the World (bil. US$)

The results of the above forecasting are shown in **Table 4.2.28**.

Table 4.2.28 Forecast of International Air Cargo in Uzbekistan

Year		1996	2000	2005	2010	2015	2020
Cargo (tons)	Case - 1	13,787	23,138	35,772	49,153	62,987	77,298
	Case - 2		23,511	37,039	51,929	68,015	85,441
	Case - 3		23,403	35,220	47,038	58,855	70,672

Note: These figures are inbound and outbound cargo.

(3) Air Cargo Demand on Air Route Basis

The total international cargo demand (refer to **Table 4.2.28**) is distributed to the respective air routes, using the composition rates for the demand for the international passengers by air route. The results are shown in **Table 4.2.29~4.2.31** for the air cargo of the international service demand.

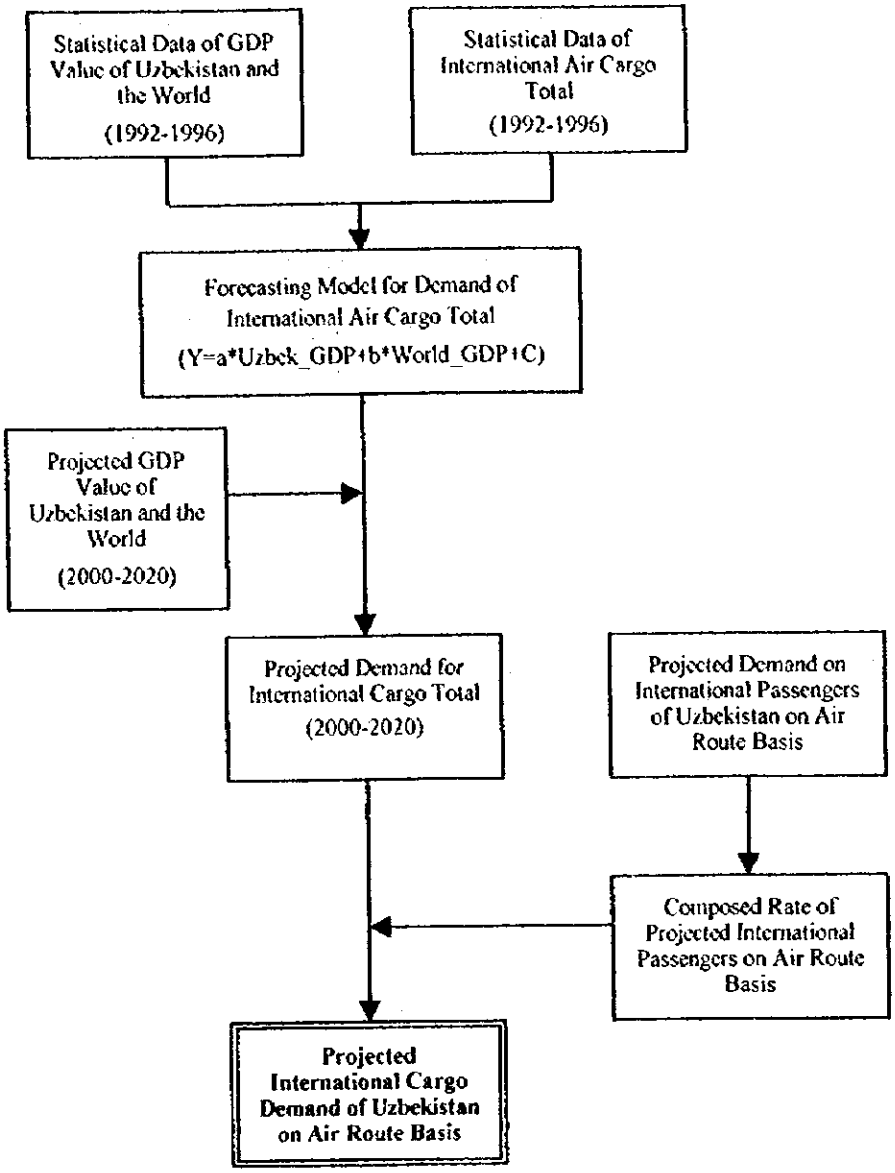


Fig. 4.2.7 Flow Diagram for Forecasting of International Air Cargo Demand

Table 4.2.29 Forecast of Annual International Air Cargo by Directions (Case 1)

(tons)

Year	Route	Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total
2000	North America	242	8	---	---	---	---	---	---	---	---	---	---	250
	Europe	2,451	170	---	881	---	765	---	---	698	---	315	---	5,307
	Middle-East	7,815	410	---	2,129	---	1,841	---	---	---	---	---	---	12,225
	A&P West	913	45	---	245	---	218	---	---	---	---	---	---	1,421
	A&P Central	2,581	90	---	---	---	---	---	---	---	---	---	---	2,671
	A&P East	1,218	42	---	---	---	---	---	---	---	---	---	---	1,260
	Total	15,265	769	---	3,260	---	2,820	---	---	698	---	315	---	23,139
2005	North America	374	13	---	---	---	---	---	---	---	---	---	---	387
	Europe	3,843	263	528	835	---	599	---	583	1,064	---	488	---	8,204
	Middle-East	9,566	634	---	3,291	---	2,847	---	---	2,563	---	---	---	18,901
	A&P West	1,313	74	---	383	---	331	---	---	298	---	---	---	2,200
	A&P Central	3,921	139	---	---	---	---	---	---	---	---	---	---	4,133
	A&P East	1,893	65	---	---	---	---	---	---	---	---	---	---	1,958
	Total	20,771	1,189	528	4,512	---	3,777	---	583	3,925	---	488	---	35,773
2010	North America	514	18	---	---	---	---	---	---	---	---	---	---	532
	Europe	5,277	362	726	1,152	---	506	317	801	1,662	---	380	291	11,223
	Middle-East	13,184	872	---	4,522	---	3,931	---	---	3,521	---	---	---	25,926
	A&P West	1,530	692	---	526	---	455	---	---	410	---	---	---	3,023
	A&P Central	5,489	191	---	---	---	---	---	---	---	---	---	---	5,679
	A&P East	1,718	90	---	466	---	403	---	---	---	---	---	---	2,677
	Total	27,670	1,633	726	6,666	---	5,295	317	801	5,393	---	380	291	49,153
2015	North America	659	23	---	---	---	---	---	---	---	---	---	---	682
	Europe	6,763	464	930	1,476	---	648	407	1,026	753	1,120	486	372	14,445
	Middle-East	14,775	1,317	---	5,795	---	5,012	---	---	4,513	---	2,068	---	33,280
	A&P West	1,561	230	---	675	---	581	---	---	525	---	---	---	3,874
	A&P Central	5,937	244	---	---	---	1,096	---	---	---	---	---	---	7,277
	A&P East	2,291	185	---	597	---	517	---	---	---	---	---	---	3,430
	Total	32,294	2,093	930	8,543	---	7,856	407	1,026	5,792	1,120	2,555	372	62,987
2020	North America	808	28	---	---	---	---	---	---	---	---	---	---	836
	Europe	8,299	569	1,142	1,811	---	795	499	1,260	925	1,374	597	457	17,728
	Middle-East	18,131	1,371	---	7,112	---	6,151	---	---	5,538	---	2,538	---	40,841
	A&P West	2,111	160	---	928	---	716	---	---	645	---	295	---	4,754
	A&P Central	5,730	300	---	1,555	---	1,345	---	---	---	---	---	---	8,930
	A&P East	2,130	141	---	733	---	634	---	---	571	---	---	---	4,209
	Total	37,210	2,569	1,142	12,039	---	9,641	499	1,260	7,678	1,374	3,430	457	77,298

(note) A&P : Asia and Pacific

Table 4.2.30 Forecast of Annual International Air Cargo by Directions (Case 2)

(tons)

Year	Route	Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total
2000	North America	246	9	---	---	---	---	---	---	---	---	---	---	254
	Europe	2,524	173	---	898	---	777	---	---	699	---	321	---	5,392
	Middle-East	7,971	417	---	2,163	---	1,871	---	---	---	---	---	---	12,422
	A&P West	928	49	---	252	---	218	---	---	---	---	---	---	1,446
	A&P Central	2,625	91	---	---	---	---	---	---	---	---	---	---	2,716
	A&P East	1,237	43	---	---	---	---	---	---	---	---	---	---	1,280
	Total	15,532	781	---	3,313	---	2,865	---	---	699	---	321	---	23,511
2005	North America	387	13	---	---	---	---	---	---	---	---	---	---	401
	Europe	3,937	273	547	868	---	620	---	604	1,102	---	505	---	8,495
	Middle-East	9,901	657	---	3,408	---	2,947	---	---	2,654	---	---	---	19,570
	A&P West	1,153	77	---	397	---	343	---	---	309	---	---	---	2,278
	A&P Central	4,136	141	---	---	---	---	---	---	---	---	---	---	4,279
	A&P East	1,949	68	---	---	---	---	---	---	---	---	---	---	2,017
	Total	21,506	1,231	547	4,672	---	3,911	---	604	4,064	---	505	---	37,049
2010	North America	543	19	---	---	---	---	---	---	---	---	---	---	562
	Europe	5,576	382	767	1,217	---	531	335	846	1,545	---	401	307	11,930
	Middle-East	13,856	921	---	4,778	---	4,132	---	---	3,720	---	---	---	27,407
	A&P West	1,616	107	---	556	---	481	---	---	433	---	---	---	3,193
	A&P Central	5,798	201	---	---	---	---	---	---	---	---	---	---	5,999
	A&P East	1,815	95	---	492	---	426	---	---	---	---	---	---	2,829
	Total	29,233	1,724	767	7,043	---	5,573	335	846	5,698	---	401	307	51,925
2015	North America	711	25	---	---	---	---	---	---	---	---	---	---	736
	Europe	7,303	501	1,065	1,594	---	700	439	1,108	819	1,209	525	402	15,599
	Middle-East	15,956	1,206	---	6,258	---	5,412	---	---	4,873	---	2,233	---	35,936
	A&P West	1,857	119	---	728	---	630	---	---	567	---	260	---	4,883
	A&P Central	5,042	269	---	1,368	---	1,184	---	---	---	---	---	---	7,855
	A&P East	2,377	124	---	645	---	558	---	---	---	---	---	---	3,704
	Total	33,243	2,260	1,065	10,593	---	8,483	439	1,108	6,254	1,209	3,019	402	68,015
2020	North America	893	31	---	---	---	---	---	---	---	---	---	---	924
	Europe	9,174	629	1,262	2,002	---	879	552	1,392	1,022	1,519	660	505	19,595
	Middle-East	20,042	1,515	3,039	4,822	---	6,799	---	---	6,121	---	2,806	---	45,144
	A&P West	2,333	176	351	561	---	791	---	---	713	---	327	---	5,255
	A&P Central	6,331	331	---	1,719	---	1,487	---	---	---	---	---	---	9,871
	A&P East	2,355	156	---	810	---	703	---	---	631	---	---	---	4,655
	Total	43,130	2,839	4,655	9,914	---	10,652	552	1,392	8,487	1,519	3,792	505	85,611

(note) A&P : Asia and Pacific

Table 4.2.31 Forecast of Annual International Air Cargo by Directions (Case 3)

(tons)

Year	Route	Tashkent	Nukus/gan	Andijan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total
2000	North America	241	9	---	---	---	---	---	---	---	---	---	---	253
	Europe	2,832	172	---	923	---	773	---	---	696	---	---	---	5,367
	Middle East	7,935	415	---	2,853	---	1,862	---	---	---	---	---	---	12,365
	A&P West	924	45	---	251	---	217	---	---	---	---	---	---	1,439
	A&P Central	2,613	91	---	---	---	---	---	---	---	---	---	---	2,704
	A&P East	1,232	43	---	---	---	---	---	---	---	---	---	---	1,275
	Total	15,779	778	---	3,298	---	2,852	---	---	696	---	---	---	23,403
2005	North America	368	13	---	---	---	---	---	---	---	---	---	---	381
	Europe	3,782	259	520	825	---	1,151	---	---	1,018	---	490	---	8,078
	Middle East	9,419	625	---	3,230	---	2,803	---	---	2,523	---	---	---	18,609
	A&P West	1,390	73	---	377	---	326	---	---	---	---	---	---	2,156
	A&P Central	3,932	137	---	---	---	---	---	---	---	---	---	---	4,069
	A&P East	1,853	61	---	---	---	---	---	---	---	---	---	---	1,919
	Total	20,744	1,170	520	4,432	---	4,292	---	---	3,571	---	490	---	35,220
2010	North America	492	17	---	---	---	---	---	---	---	---	---	---	509
	Europe	5,051	346	695	1,102	---	788	---	766	1,099	---	611	---	10,788
	Middle East	12,578	833	---	4,329	---	3,743	---	---	3,370	---	---	---	24,853
	A&P West	1,461	97	---	504	---	436	---	---	392	---	---	---	2,893
	A&P Central	5,252	182	---	---	---	---	---	---	---	---	---	---	5,434
	A&P East	2,090	86	---	---	---	386	---	---	---	---	---	---	2,562
	Total	26,926	1,563	695	5,933	---	5,352	---	766	5,161	---	641	---	47,038
2015	North America	615	21	---	---	---	---	---	---	---	---	---	---	637
	Europe	6,319	433	869	1,379	---	606	380	959	1,751	---	451	348	13,498
	Middle-East	15,738	1,041	---	5,415	---	4,683	---	---	4,217	---	---	---	31,096
	A&P West	1,822	122	---	630	---	545	---	---	491	---	---	---	3,620
	A&P Central	6,371	228	---	---	---	---	---	---	---	---	---	---	6,800
	A&P East	2,057	108	---	558	---	453	---	---	---	---	---	---	3,205
	Total	33,032	1,956	869	7,982	---	6,317	380	959	6,458	---	451	348	58,855
2020	North America	739	26	---	---	---	---	---	---	---	---	---	---	764
	Europe	7,558	526	1,044	1,656	---	727	456	1,152	816	1,257	516	418	15,208
	Middle-East	16,577	1,253	---	6,502	---	5,634	---	---	5,063	---	2,321	---	37,340
	A&P West	1,930	136	---	757	---	655	---	---	589	---	270	---	4,347
	A&P Central	6,661	274	---	---	---	1,230	---	---	---	---	---	---	8,165
	A&P East	2,469	129	---	670	---	586	---	---	---	---	---	---	3,848
	Total	35,964	2,349	1,044	9,585	---	8,835	456	1,152	6,498	1,257	3,036	418	70,672

(note) A&P : Asia and Pacific

4.2.9 Aircraft Movement

(1) Estimate of Aircraft Movements

Considering the current scheduled flight conditions in Uzbekistan and the result of the demand forecast, the number of aircraft movements and the future fleet mix are estimated as shown below.

Number of freighters is also estimated, taking into account the volume of belly cargo of passenger flights.

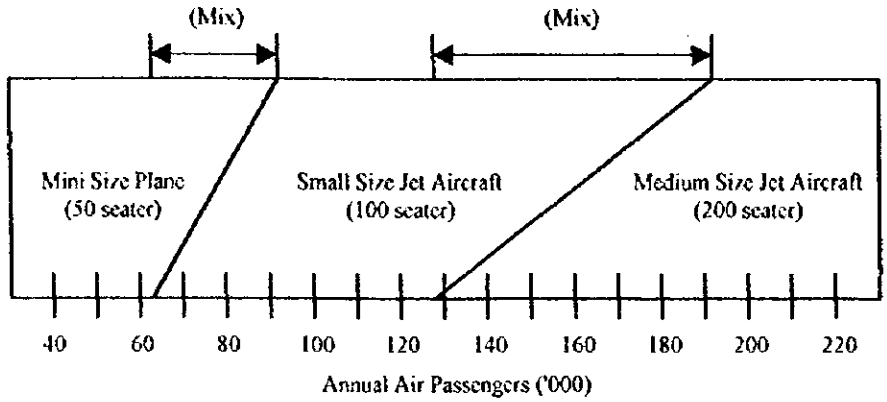
a) Domestic Passenger Flights

The aircraft mix on domestic passenger services is as follows:.

- Mini size plane (50 seater)
- Small size jet aircraft (100 seater)
- Medium size jet aircraft (200 seater)

The aircraft assignment is shown in **Fig. 4.2.8** on the annual air passenger basis of an assumed seventy percent average load factor, in other words a 70% seat occupancy rate.

Fig. 4.2.8 Aircraft Assignment for Domestic Air Service



It is planned that four flights per day (two round trips per day) on each air route are to be maintained as the minimum requirement for a convenient passenger service. According to the transition of fleet to a bigger size due to the increase in passenger demand, it may happen that the number of flights may decrease. However, in any case, it is planned that two round trips per day on each route are to be maintained.

b) Inter-CIS Passenger Flights

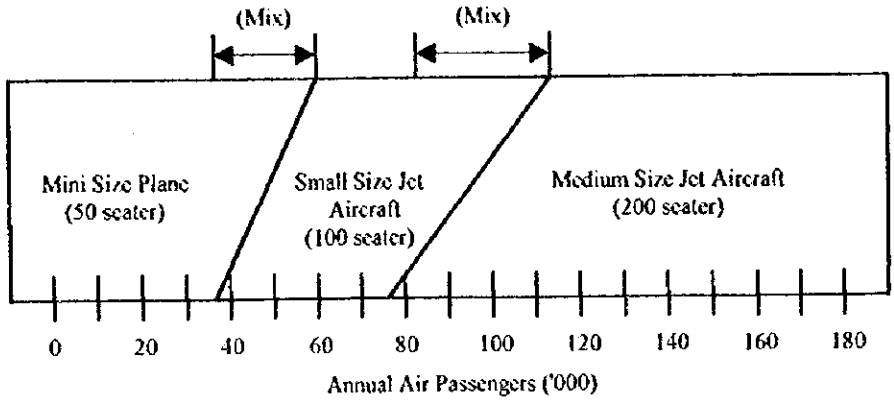
The air routes of the inter-CIS service are divided into two groups, namely, the air routes for short haul distance of the surrounding countries (Central Asia) to be served by the mini size plane, and the air routes for the long haul distance of Kavkaz and Slavic & Baltic states to be served by the small size jet aircraft and the bigger.

The following is considered relevant for the aircraft mix on the passenger services for the four countries of Central Asia.

- Mini size plane (50 seater)
- Small size jet aircraft (100 seater)
- Medium size jet aircraft (200 seater)

The aircraft assignment is shown in **Fig. 4.2.9** on the annual passenger basis, and average load factor is assumed at 70%..

Fig. 4.2.9 Aircraft Assignment for Inter-Central Asia Air Service



For longer distances than the domestic air routes, it is planned that two flights per day (one round trip per day) are to be maintained as the minimum requirement.

Regarding the fleet for air routes to Kavkaz and Slavic & Baltic States, considering the flights on the routes currently served by medium size jets, the following fleet is planned to be served as shown in **Table 4.2.32**.

- Small size jet aircraft (100 seater)
- Medium size jet aircraft (200 seater)
- Large size jet aircraft (350 seater)

Table 4.2.32 Aircraft Mix for Inter-CIS Air Service (Excluding Inter-Central Asia)

Aircraft Type	Small Jet Aircraft	Medium Jet Aircraft	Large Jet Aircraft
Number of Seats Available	100	200	350
Share by Aircraft Type (%)	20	70	10

c) International Passenger Flight

Aircraft mix for international passenger flight is assumed as follows:

- Medium size jet aircraft (200 seater)
- Large size jet aircraft (350 seater)

According to present operation, medium size jet aircraft are served on all over the air

routes from Tashkent airport in spite of small passenger demand volume. Therefore, aircraft assignment is assumed as shown in **Table 4.2.33**, considering the introduction of large jets in near future.

Table 4.2.33 Aircraft Assignment for International Air Service

Aircraft Type	Small Jet Aircraft	Large Jet Aircraft
Number of Seats Available	200	350
Share by Aircraft Type (%)	90	10

d) Domestic Freighter Service

The domestic freighters are planned to be served in order to transport the remaining cargo volume after belly cargo transportation by passenger flights.

At first, the volume to be transported by belly cargo is calculated as shown in **Table 4.2.34**. The, required number of freighters is then calculated based on the remaining cargo volume.

Table 4.2.34 Belly Cargo Capacity

Aircraft Type	Mini Plane	Small Jet Aircraft	Medium Jet Aircraft
Cargo Capacity Per Flight (t)	2	5	20
Average Load Factor (%)	5 - 10	5 - 10	5 - 10
Average Cargo Per Flight (t)	0.1 - 0.2	0.25 - 0.5	1.0 - 2.0

The average cargo volume per freighter is assumed as shown in **Table 4.2.35**.

Table 4.2.35 Cargo Capacity of Freighter

Aircraft Type	Mini Size Plane
Cargo Capacity Per Flight (t)	7
Average Load Factor (%)	40
Average Cargo Per Flight (t)	2.8

e) Inter-CIS Freighter Service

The Inter-CIS freighters are planned to be serviceable in order to transport the remaining cargo volume after belly cargo transportation by passenger flights.

At first, the volume to be transported by belly cargo is calculated as shown in **Table 4.2.36**. The required number of freighters is then calculated based on the remaining cargo volume.

Table 4.2.36 Belly Cargo Capacity

Aircraft Type	Mini Size Plane	Small Jet Aircraft	Medium Jet Aircraft	Large Jet Aircraft
Cargo Capacity Per Flight (t)	2	5	20	25
Average Load Factor (%)	5	5	5	5
Average Cargo Per Flight (t)	0.1	0.25	1.0	1.25

The average cargo volume per freighter is assumed as shown in **Table 4.2.37**.

Table 4.2.37 Cargo Capacity of Freighter

Aircraft Type	Mini Size Plane	Medium Jet Aircraft
Cargo Capacity Per Flight (t)	7	40
Average Load Factor (%)	40	40
Average Cargo Per Flight (t)	2.8	16.0

The serving aircraft are selected in accordance with the hauling distance.

The air routes connected with;

- Central Asia: Mini size plane (seven tonnage)
- Kavkaz, Slavic & Baltic States: Medium size jet aircraft (forty tonnage)

f) International Freighter Service

The international freighters are planned to be serviceable in order to transport the remaining cargo volume after belly cargo transportation by passenger flights.

At first, the volume to be transported by belly cargo is calculated as shown in **Table 4.2.38**. The required number of freighters is then calculated based on the remaining cargo volume.

Table 4.2.38 Belly Cargo Capacity

Aircraft Type	Medium Size Jet Aircraft	Large Size Jet Aircraft
Cargo Capacity Per Flight (t)	20	25
Average Load Factor (%)	5	5
Average Cargo Per Flight (t)	1	1.25

The average cargo volume per freighter is assumed as shown in **Table 4.2.39**.

Table 4.2.39 Cargo Capacity of Freighter

Aircraft Type	Medium Size Jet Aircraft
Cargo Capacity Per Flight (t)	40
Average Load Factor (%)	40
Average Cargo Per Flight (t)	16

(2) Aircraft Movement

a) Domestic Passenger Service

Results are shown in **Table 4.2.40~4.2.42** for aircraft movements.

b) Inter-CIS Passenger Service

Results are shown in **Table 4.2.43~4.2.45** for aircraft movements.

c) International Passenger Service

Results are shown in **Table 4.2.46~4.2.48** for aircraft movements.

d) Domestic Freighter Service

It is concluded that no freighter service are required due to the sufficient capacity of belly cargo operation by passenger aircraft.

e) Inter-CIS Freighter Service

Results are shown in **Table 4.2.49~4.2.51** for aircraft movements.

f) International Freighter Service

Results are shown in **Table 4.2.52~4.2.54** for aircraft movements.

Table 4.2.40 Forecast of Weekly Aircraft Movements (Departure and Arrival) by Aircraft Type (Case 1)

Year	Airport	Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total (*)
		subject to Small Jet - Medium Jet												
2000	Tashkent		28-0-0	18-18-0	16-16-0	8-0-0	30-0-0	16-16-0	26-0-0	14-14-0	14-0-0	0-31-0	14-14-0	218-112-0
	Namangan	28-0-0		---	---	---	18-0-0	18-0-0	---	16-0-0	---	22-0-0	14-0-0	116-0-0
	Andizhan	18-18-0	---		---	---	34-0-0	28-0-0	22-0-0	26-0-0	---	14-14-0	20-0-0	162-32-0
	Fergana	16-16-0	---	---		---	28-0-0	28-0-0	20-0-0	26-0-0	---	14-14-0	22-0-0	154-30-0
	Kokand	8-0-0	---	---	---		---	---	---	---	---	---	---	8-0-0
	Samarkand	30-0-0	18-0-0	34-0-0	28-0-0	---		---	---	---	---	---	---	110-0-0
	Termez	16-16-0	18-0-0	28-0-0	28-0-0	---	---		---	---	---	---	---	90-16-0
	Karshi	26-0-0	---	22-0-0	20-0-0	---	---	---		---	---	---	---	68-0-0
	Bukhara	14-14-0	16-0-0	26-0-0	26-0-0	---	---	---	---		---	---	---	82-14-0
	Navoi	14-0-0	---	---	---	---	---	---	---	---		---	---	14-0-0
	Urgench	0-31-0	22-0-0	14-14-0	14-14-0	---	---	---	---	---	---		---	50-62-0
	Nukus	14-14-0	14-0-0	20-0-0	22-0-0	---	---	---	---	---	---	---		70-14-0
	others	30-0-0	---	---	---	---	---	---	---	---	---	---	---	30-0-0
	Total	234-192-0	116-0-0	162-32-0	154-30-0	8-0-0	110-0-0	90-16-0	68-0-0	82-14-0	14-0-0	50-62-0	70-14-0	554-130-0
2005	Tashkent		34-0-0	0-30-0	0-28-0	10-0-0	14-14-0	0-28-0	32-0-0	16-16-0	16-0-0	0-14-14	16-16-0	174-116-14
	Namangan	34-0-0		---	---	---	22-0-0	22-0-0	16-0-0	30-0-0	---	28-0-0	16-0-0	158-0-0
	Andizhan	0-30-0	---		---	---	14-14-0	34-0-0	28-0-0	32-0-0	14-0-0	14-14-0	26-0-0	162-58-0
	Fergana	0-28-0	---	---		---	34-0-0	34-14-0	24-0-0	32-0-0	---	14-14-0	26-0-0	188-56-0
	Kokand	10-0-0	---	---	---		---	---	---	---	---	---	---	10-0-0
	Samarkand	14-14-0	22-0-0	34-14-0	34-0-0	---		---	---	---	---	14-0-0	---	98-28-0
	Termez	0-28-0	22-0-0	34-0-0	14-14-0	---	---		---	---	---	---	---	70-42-0
	Karshi	32-0-0	16-0-0	28-0-0	24-0-0	---	---	---		---	---	---	---	100-0-0
	Bukhara	16-16-0	20-0-0	32-0-0	32-0-0	---	---	---	---		---	---	---	100-16-0
	Navoi	16-0-0	---	14-0-0	---	---	---	---	---	---		---	---	30-0-0
	Urgench	0-14-14	28-0-0	14-14-0	14-14-0	---	14-0-0	---	---	---	---		---	70-42-14
	Nukus	16-16-0	16-0-0	26-0-0	26-0-0	---	---	---	---	---	---	---		84-16-0
	others	36-0-0	---	---	---	---	---	---	---	---	---	---	---	36-0-0
	Total	174-116-14	158-0-0	162-58-0	154-56-0	10-0-0	98-28-0	70-42-0	100-0-0	100-16-0	30-0-0	70-42-14	84-16-0	618-302-14
2010	Tashkent		14-14-0	0-34-0	0-32-0	10-0-0	14-14-0	0-32-0	14-14-0	0-28-0	14-0-0	0-16-16	0-28-0	114-212-16
	Namangan	14-14-0		---	---	---	26-0-0	28-0-0	18-0-0	24-0-0	---	14-14-0	20-0-0	144-28-0
	Andizhan	0-34-0	---		---	---	16-16-0	14-14-0	34-0-0	14-14-0	16-0-0	0-26-0	30-0-0	124-104-0
	Fergana	0-32-0	---	---		---	14-14-0	14-14-0	30-0-0	14-14-0	14-0-0	0-26-0	32-0-0	118-100-0
	Kokand	10-0-0	---	---	---		---	---	---	---	---	---	---	10-0-0
	Samarkand	14-14-0	26-0-0	16-16-0	14-14-0	---		---	---	---	---	14-0-0	---	84-44-0
	Termez	0-32-0	28-0-0	14-14-0	14-14-0	---	---		---	---	---	14-0-0	---	70-60-0
	Karshi	14-14-0	18-0-0	34-0-0	30-0-0	---	---	---		---	---	---	---	96-14-0
	Bukhara	0-28-0	24-0-0	14-14-0	14-14-0	---	---	---	---		---	---	---	52-56-0
	Navoi	18-0-0	---	16-0-0	14-0-0	---	---	---	---	---		---	---	48-0-0
	Urgench	0-16-16	14-14-0	0-26-0	0-26-0	---	14-0-0	14-0-0	---	---	---		---	46-82-16
	Nukus	0-28-0	20-0-0	30-0-0	32-0-0	---	---	---	---	---	---	---		82-28-0
	others	41-0-0	---	---	---	---	---	---	---	---	---	---	---	41-0-0
	Total	118-212-16	143-28-0	124-104-0	118-100-0	10-0-0	88-44-0	70-60-0	96-14-0	52-56-0	48-0-0	46-82-16	82-28-0	528-364-16
2015	Tashkent		16-16-0	0-14-14	0-14-14	12-0-0	16-16-0	0-14-14	14-14-0	0-30-0	20-0-0	0-0-28	0-32-0	126-150-70
	Namangan	16-16-0		---	---	---	30-0-0	34-0-0	22-0-0	30-0-0	---	14-14-0	24-0-0	170-30-0
	Andizhan	0-14-14	---		---	---	0-30-0	16-16-0	14-14-0	16-16-0	20-0-0	0-32-0	14-14-0	88-136-14
	Fergana	0-14-14	---	---		---	16-16-0	18-18-0	14-14-0	16-16-0	16-0-0	0-32-0	14-14-0	94-124-14
	Kokand	12-0-0	---	---	---		---	---	---	---	---	14-0-0	---	26-0-0
	Samarkand	16-16-0	30-0-0	0-30-0	16-16-0	---		---	---	---	---	22-0-0	---	84-62-0
	Termez	0-14-14	34-0-0	16-16-0	18-18-0	---	---		---	---	---	18-0-0	---	86-48-14
	Karshi	14-14-0	22-0-0	14-14-0	14-14-0	---	---	---		---	---	---	---	64-42-0
	Bukhara	0-30-0	30-0-0	16-16-0	16-16-0	---	---	---	---		---	---	---	62-62-0
	Navoi	20-0-0	---	20-0-0	16-0-0	---	---	---	---	---		---	---	56-0-0
	Urgench	0-0-28	14-14-0	0-32-0	0-32-0	14-0-0	22-0-0	14-0-0	---	---	---		---	68-78-28
	Nukus	0-32-0	24-0-0	14-14-0	14-14-0	---	---	---	---	---	---	---		52-60-0
	others	45-0-0	---	---	---	---	---	---	---	---	---	---	---	45-0-0
	Total	126-150-70	170-30-0	88-136-14	94-124-14	26-0-0	84-62-0	86-48-14	64-42-0	62-62-0	56-0-0	68-78-28	52-60-0	508-396-70
2020	Tashkent		18-18-0	0-14-14	0-14-14	14-0-0	18-18-0	0-14-14	16-16-0	0-14-14	24-0-0	0-0-32	0-14-14	146-122-102
	Namangan	18-18-0		---	---	---	14-14-0	14-14-0	28-0-0	14-14-0	---	16-16-0	28-0-0	132-76-0
	Andizhan	0-14-14	---		---	---	0-34-0	0-30-0	16-16-0	0-26-0	24-0-0	0-14-14	14-14-0	54-164-28
	Fergana	0-14-14	---	---		---	0-28-0	0-30-0	14-14-0	0-26-0	20-0-0	0-14-14	14-14-0	48-140-28
	Kokand	14-0-0	---	---	---		---	---	---	---	---	16-0-0	---	30-0-0
	Samarkand	18-18-0	14-14-0	0-34-0	0-28-0	---		---	---	---	---	28-0-0	16-0-0	72-94-0
	Termez	0-14-14	14-14-0	0-30-0	0-30-0	---	---		---	---	---	22-0-0	---	36-88-14
	Karshi	16-16-0	28-0-0	16-16-0	14-14-0	---	---	---		---	---	---	---	74-46-0
	Bukhara	0-14-14	14-14-0	0-26-0	0-26-0	---	---	---	---		---	---	---	14-80-14
	Navoi	24-0-0	---	24-0-0	20-0-0	---	---	---	---	---		---	---	68-0-0
	Urgench	0-0-32	16-16-0	0-14-14	0-14-14	16-0-0	24-0-0	22-0-0	---	---	---		---	78-44-60
	Nukus	0-14-14	28-0-0	14-14-0	14-14-0	---	16-0-0	---	---	---	---	---		72-42-14
	others	56-0-0	---	---	---	---	---	---	---	---	---	---	---	56-0-0
	Total	146-122-102	132-76-0	54-134-28	48-140-28	30-0-0	72-94-0	36-88-14	74-46-0	14-80-14	68-0-0	78-44-60	72-42-14	410-410-330

(*) : including other airports

Table 4.2.41 Forecast of Weekly Aircraft Movements (Departure and Arrival) by Aircraft Type (Case 2)

subject to Small Jet - Medium Jet

Year	Airport	Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total (*)
2000	Tashkent		30-0-0	0-26-0	16-16-0	8-0-0	30-0-0	16-16-0	26-0-0	11-11-0	11-0-0	0-11-11	11-11-0	200-100-11
	Namangan	30-0-0		---	---	---	18-0-0	18-0-0	---	16-0-0	---	21-0-0	11-0-0	120-0-0
	Andizhan	0-26-0	---		---	---	11-11-0	28-0-0	24-0-0	26-0-0	---	11-11-0	22-0-0	128-54-0
	Fergana	16-16-0	---	---		---	28-0-0	28-0-0	20-0-0	28-0-0	---	11-11-0	22-0-0	156-30-0
	Kokand	8-0-0	---	---	---		---	---	---	---	---	---	---	8-0-0
	Samarkand	30-0-0	18-0-0	11-11-0	28-0-0	---		---	---	---	---	---	---	90-11-0
	Termez	16-16-0	18-0-0	28-0-0	28-0-0	---	---		---	---	---	---	---	90-16-0
	Karshi	26-0-0	---	24-0-0	20-0-0	---	---	---		---	---	---	---	70-0-0
	Bukhara	11-11-0	16-0-0	26-0-0	28-0-0	---	---	---	---		---	---	---	84-11-0
	Navoi	11-0-0	---	---	---	---	---	---	---	---		---	---	11-0-0
	Urgench	0-11-11	21-0-0	11-11-0	11-11-0	---	---	---	---	---	---		---	52-42-11
	Nukus	11-11-0	11-0-0	22-0-0	22-0-0	---	---	---	---	---	---	---		72-11-0
	others	32-0-0	---	---	---	---	---	---	---	---	---	---	---	32-0-0
	Total	200-100-11	120-0-0	128-54-0	156-30-0	8-0-0	90-11-0	90-16-0	70-0-0	81-11-0	11-0-0	52-42-11	72-11-0	558-342-11
2005	Tashkent		11-11-0	0-32-0	0-30-0	10-0-0	11-11-0	0-30-0	32-0-0	16-16-0	11-0-0	0-11-11	0-26-0	118-176-11
	Namangan	11-11-0		---	---	---	21-0-0	24-0-0	16-0-0	22-0-0	---	32-0-0	11-0-0	150-11-0
	Andizhan	0-32-0	---		---	---	16-16-0	11-11-0	30-0-0	34-0-0	16-0-0	16-16-0	28-0-0	151-78-0
	Fergana	0-30-0	---	---		---	11-11-0	11-11-0	26-0-0	14-14-0	---	16-16-0	23-0-0	132-89-0
	Kokand	10-0-0	---	---	---		---	---	---	---	---	---	---	10-0-0
	Samarkand	11-11-0	24-0-0	16-16-0	11-11-0	---		---	---	---	---	16-0-0	---	82-11-0
	Termez	0-30-0	24-0-0	11-11-0	11-11-0	---	---		---	---	---	---	---	52-58-0
	Karshi	34-0-0	16-0-0	30-0-0	26-0-0	---	---	---		---	---	---	---	106-0-0
	Bukhara	16-16-0	22-0-0	31-0-0	11-11-0	---	---	---	---		---	---	---	86-30-0
	Navoi	11-0-0	---	16-0-0	---	---	---	---	---	---		---	---	31-0-0
	Urgench	0-11-11	32-0-0	16-16-0	16-16-0	---	16-0-0	---	---	---	---		---	80-46-11
	Nukus	0-26-0	11-0-0	28-0-0	28-0-0	---	---	---	---	---	---	---		74-26-0
	others	42-0-0	---	---	---	---	---	---	---	---	---	---	---	42-0-0
	Total	148-176-11	150-11-0	151-78-0	132-58-0	10-0-0	81-11-0	52-58-0	106-0-0	86-30-0	34-0-0	80-46-11	74-26-0	566-280-11
2010	Tashkent		11-11-0	0-11-11	0-11-11	12-0-0	16-16-0	0-11-11	11-11-0	0-32-0	22-0-0	0-0-28	0-32-0	126-150-70
	Namangan	11-11-0		---	---	---	30-0-0	32-0-0	22-0-0	28-0-0	---	11-11-0	24-0-0	164-28-0
	Andizhan	0-11-11	---		---	---	0-28-0	16-16-0	11-11-0	11-11-0	20-0-0	0-30-0	11-11-0	78-130-11
	Fergana	0-11-11	---	---		---	16-16-0	16-16-0	34-0-0	11-11-0	16-0-0	0-30-0	11-11-0	110-104-11
	Kokand	12-0-0	---	---	---		---	---	---	---	---	---	---	12-0-0
	Samarkand	16-16-0	30-0-0	0-28-0	16-16-0	---		---	---	---	---	20-0-0	---	92-60-0
	Termez	0-11-11	32-0-0	16-16-0	16-16-0	---	---		---	---	---	16-0-0	---	80-46-11
	Karshi	11-11-0	22-0-0	11-11-0	34-0-0	---	---	---		---	---	---	---	84-28-0
	Bukhara	0-32-0	28-0-0	11-11-0	11-11-0	---	---	---	---		---	---	---	56-60-0
	Navoi	22-0-0	---	20-0-0	16-0-0	---	---	---	---	---		---	---	58-0-0
	Urgench	0-0-28	11-11-0	0-30-0	0-30-0	---	20-0-0	16-0-0	---	---	---		---	50-74-28
	Nukus	0-32-0	24-0-0	11-11-0	11-11-0	---	---	---	---	---	---	---		52-60-0
	others	48-0-0	---	---	---	---	---	---	---	---	---	---	---	48-0-0
	Total	126-150-70	164-28-0	78-130-11	110-104-11	12-0-0	82-60-0	80-46-11	84-28-0	56-60-0	58-0-0	50-74-28	52-60-0	500-370-70
2015	Tashkent		0-28-0	0-16-16	0-16-16	14-0-0	0-28-0	0-16-16	0-26-0	0-11-11	26-0-0	0-0-34	0-11-11	100-158-110
	Namangan	0-28-0		---	---	---	11-11-0	11-11-0	28-0-0	11-11-0	---	11-11-0	30-0-0	115-88-0
	Andizhan	0-16-16	---		---	---	0-11-11	0-32-0	16-16-0	0-28-0	21-0-0	0-11-11	11-11-0	54-134-44
	Fergana	0-16-16	---	---		---	0-30-0	0-32-0	11-11-0	0-28-0	20-0-0	0-11-11	16-16-0	50-150-30
	Kokand	14-0-0	---	---	---		---	---	---	---	---	16-0-0	---	30-0-0
	Samarkand	0-28-0	11-11-0	0-11-11	0-30-0	---		11-0-0	---	---	---	26-0-0	16-0-0	70-86-11
	Termez	0-16-16	11-11-0	0-32-0	0-32-0	---	11-0-0		---	---	---	22-0-0	---	50-94-16
	Karshi	0-26-0	28-0-0	16-16-0	11-11-0	---	---	---		---	---	---	---	58-56-0
	Bukhara	0-11-11	11-11-0	0-28-0	0-28-0	---	---	---	---		---	---	---	34-84-11
	Navoi	26-0-0	---	24-0-0	20-0-0	---	---	---	---	---		---	---	70-0-0
	Urgench	0-0-34	11-11-0	0-11-11	0-11-11	16-0-0	26-0-0	22-0-0	---	---	---		---	82-46-62
	Nukus	0-11-11	30-0-0	11-11-0	16-16-0	---	16-0-0	---	---	---	---	---		76-44-11
	others	60-0-0	---	---	---	---	---	---	---	---	---	---	---	60-0-0
	Total	109-158-110	118-88-0	54-134-44	50-150-30	30-0-0	70-86-11	50-94-16	58-56-0	14-84-11	70-0-0	82-46-62	76-44-11	416-170-152
2020	Tashkent		0-34-0	0-0-30	0-0-28	18-0-0	0-34-0	0-0-29	0-32-0	0-16-16	32-0-0	0-0-42	0-16-16	124-132-160
	Namangan	0-34-0		---	---	---	16-16-0	0-26-0	14-14-0	16-16-0	16-0-0	0-34-0	14-14-0	76-154-0
	Andizhan	0-0-30	---		---	---	0-16-16	0-11-11	0-32-0	0-34-0	30-0-0	0-16-16	0-28-0	78-130-76
	Fergana	0-0-28	---	---		---	0-11-11	0-11-11	0-29-0	0-34-0	26-0-0	0-16-16	0-29-0	72-134-72
	Kokand	18-0-0	---	---	---		16-0-0	16-0-0	---	11-0-0	---	22-0-0	---	86-0-0
	Samarkand	0-34-0	16-16-0	0-16-16	0-11-11	16-0-0		18-0-0	---	---	---	32-0-0	20-0-0	102-50-30
	Termez	0-0-28	0-26-0	0-11-11	0-11-11	16-0-0	18-0-0		---	11-0-0	---	28-0-0	16-0-0	92-54-56
	Karshi	0-32-0	14-14-0	0-32-0	0-29-0	---	---	---		---	---	16-0-0	---	30-106-0
	Bukhara	0-16-16	16-16-0	0-34-0	0-34-0	11-0-0	---	11-0-0	---		---	---	---	68-100-16
	Navoi	32-0-0	16-0-0	30-0-0	26-0-0	---	---	---	---	---		---	---	104-0-0
	Urgench	0-0-42	0-34-0	0-16-16	0-16-16	22-0-0	32-0-0	28-0-0	16-0-0	---	---		---	98-66-74
	Nukus	0-16-16	11-11-0	0-28-0	0-28-0	---	20-0-0	16-0-0	---	---	---	---		50-86-16
	others	74-0-0	---	48-0-0	46-0-0	---	---	---	---	---	---	---	---	74-0-0
	Total	124-132-160	76-154-0	78-110-76	72-134-72	86-0-0	102-50-30	92-54-56	30-106-0	68-100-16	104-0-0	98-66-74	50-86-16	562-526-250

(*) : Including other airports

Table 4.2.41 Forecast of Weekly Aircraft Movements (Departure and Arrival) by Aircraft Type (Case 3)

subject to Small Jet - Medium Jet

Year	Airport	Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total (*)
2000	Tashkent		26-0-0	16-16-0	16-16-0	8-0-0	29-0-0	11-11-0	24-0-0	11-11-0	12-0-0	0-32-0	14-11-0	200-106-0
	Namangan	26-0-0					16-0-0	16-0-0		16-0-0		22-0-0		96-0-0
	Andizhan	16-16-0					32-0-0	26-0-0	22-0-0	24-0-0		34-0-0	20-0-0	171-16-0
	Fergana	16-16-0					26-0-0	26-0-0	19-0-0	24-0-0		34-0-0	20-0-0	161-16-0
	Kokand	8-0-0												8-0-0
	Samarkand	29-0-0	16-0-0	32-0-0	26-0-0									102-0-0
	Termez	11-11-0	16-0-0	26-0-0	26-0-0									82-11-0
	Karshi	24-0-0		22-0-0	19-0-0									64-0-0
	Bukhara	11-11-0	16-0-0	24-0-0	24-0-0									78-11-0
	Navoi	12-0-0												12-0-0
	Urgench	0-32-0	22-0-0	34-0-0	34-0-0									90-32-0
	Nukus	14-11-0		20-0-0	20-0-0									54-11-0
	others	28-0-0												28-0-0
	Total	200-106-0	96-0-0	174-16-0	163-16-0	8-0-0	102-0-0	82-11-0	61-0-0	78-11-0	12-0-0	90-32-0	54-11-0	576-106-0
2005	Tashkent		30-0-0	0-26-0	16-16-0	8-0-0	30-0-0	16-16-0	28-0-0	14-11-0	11-0-0	0-11-11	14-11-0	202-309-11
	Namangan	30-0-0					19-0-0	20-0-0		19-0-0		26-0-0	14-0-0	126-0-0
	Andizhan	0-26-0					14-11-0	30-0-0	21-0-0	28-0-0		14-11-0	22-0-0	132-54-0
	Fergana	16-16-0					30-0-0	30-0-0	22-0-0	28-0-0		14-11-0	22-0-0	162-30-0
	Kokand	8-0-0												8-0-0
	Samarkand	30-0-0	19-0-0	14-11-0	30-0-0									93-11-0
	Termez	16-16-0	20-0-0	30-0-0	30-0-0									96-16-0
	Karshi	28-0-0		24-0-0	22-0-0									74-0-0
	Bukhara	14-11-0	19-0-0	28-0-0	28-0-0									88-11-0
	Navoi	11-0-0												11-0-0
	Urgench	0-11-11	26-0-0	11-11-0	11-11-0									51-42-11
	Nukus	14-11-0	14-0-0	22-0-0	22-0-0									72-11-0
	others	32-0-0												32-0-0
	Total	202-309-11	126-0-0	132-54-0	162-30-0	8-0-0	92-11-0	96-16-0	74-0-0	88-11-0	11-0-0	54-42-11	72-11-0	526-142-11
2010	Tashkent		32-0-0	0-28-0	0-26-0	8-0-0	34-0-0	0-28-0	30-0-0	11-11-0	16-0-0	0-11-11	16-16-0	186-126-11
	Namangan	32-0-0					22-0-0	22-0-0	16-0-0	20-0-0		30-0-0	16-0-0	158-0-0
	Andizhan	0-28-0					14-11-0	11-11-0	28-0-0	32-0-0	11-0-0	11-11-0	26-0-0	192-70-0
	Fergana	0-26-0					34-0-0	11-11-0	24-0-0	32-0-0		14-11-0	26-0-0	141-54-0
	Kokand	8-0-0												8-0-0
	Samarkand	34-0-0	22-0-0	14-11-0	34-0-0							11-0-0		119-11-0
	Termez	0-28-0	22-0-0	11-11-0	11-11-0									50-56-0
	Karshi	30-0-0	16-0-0	28-0-0	24-0-0									98-0-0
	Bukhara	11-11-0	20-0-0	32-0-0	32-0-0									95-11-0
	Navoi	16-0-0		14-0-0										30-0-0
	Urgench	0-11-11	30-0-0	11-11-0	11-11-0		14-0-0							72-42-11
	Nukus	16-16-0	16-0-0	26-0-0	26-0-0									84-16-0
	others	36-0-0												36-0-0
	Total	186-126-11	158-0-0	142-70-0	141-54-0	8-0-0	118-11-0	50-56-0	98-0-0	95-11-0	30-0-0	72-42-11	84-16-0	612-196-11
2015	Tashkent		11-11-0	0-30-0	0-28-0	10-0-0	11-11-0	0-30-0	31-0-0	16-16-0	16-0-0	0-11-11	16-16-0	160-152-11
	Namangan	11-11-0					24-0-0	26-0-0	18-0-0	22-0-0		32-0-0	20-0-0	156-11-0
	Andizhan	0-30-0					16-16-0	11-11-0	32-0-0	11-11-0	16-0-0	16-16-0	28-0-0	136-90-0
	Fergana	0-28-0					11-11-0	11-11-0	28-0-0	11-11-0		16-16-0	28-0-0	114-85-0
	Kokand	10-0-0												10-0-0
	Samarkand	11-11-0	24-0-0	16-16-0	11-11-0							16-0-0		84-41-0
	Termez	0-30-0	26-0-0	11-11-0	11-11-0							11-0-0		69-58-0
	Karshi	31-0-0	19-0-0	32-0-0	29-0-0									112-0-0
	Bukhara	16-16-0	22-0-0	11-11-0	11-11-0									66-41-0
	Navoi	16-0-0		16-0-0										32-0-0
	Urgench	0-11-11	32-0-0	16-16-0	16-16-0		16-0-0	11-0-0						91-46-11
	Nukus	16-16-0	20-0-0	28-0-0	28-0-0									92-16-0
	others	40-0-0												40-0-0
	Total	160-152-11	156-11-0	136-90-0	114-85-0	10-0-0	84-41-0	69-58-0	112-0-0	66-41-0	32-0-0	91-46-11	92-16-0	592-280-11
2020	Tashkent		11-11-0	0-32-0	0-30-0	10-0-0	11-11-0	0-32-0	11-11-0	11-11-0	11-0-0	0-16-16	0-28-0	130-198-16
	Namangan	11-11-0					26-0-0	30-0-0	20-0-0	26-0-0		11-11-0	22-0-0	152-28-0
	Andizhan	0-32-0					16-16-0	11-11-0	11-11-0	11-11-0	11-0-0	0-28-0	32-0-0	108-113-0
	Fergana	0-30-0					11-11-0	11-11-0	30-0-0	11-11-0	11-0-0	0-28-0	32-0-0	118-100-0
	Kokand	10-0-0												10-0-0
	Samarkand	11-11-0	26-0-0	16-16-0	11-11-0							11-0-0		83-41-0
	Termez	0-32-0	30-0-0	11-11-0	11-11-0							16-0-0		74-69-0
	Karshi	11-11-0	20-0-0	11-11-0	30-0-0									78-28-0
	Bukhara	11-11-0	26-0-0	11-11-0	11-11-0									72-46-0
	Navoi	11-0-0		11-0-0	11-0-0									50-0-0
	Urgench	0-16-16	11-11-0	0-28-0	0-28-0		11-0-0	11-0-0						83-86-16
	Nukus	0-28-0	22-0-0	32-0-0	32-0-0									86-28-0
	others	42-0-0												42-0-0
	Total	130-198-16	152-28-0	108-113-0	118-100-0	10-0-0	83-41-0	71-60-0	78-28-0	72-46-0	50-0-0	48-86-16	86-28-0	528-368-16

(*): including other airports

Table 4.2.43 Forecast of Weekly Aircraft Movements (Departure and Arrival) by Aircraft Type (Case 1)

subject to Mid Plane - Small Jet - Medium Jet - Large Jet

Year	Direction		Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total
2000	Central Asia	Kazakhstan	20-0-0-0	2-0-0-0	2-0-0-0	2-0-0-0	---	4-0-0-0	---	2-0-0-0	4-0-0-0	---	2-0-0-0	2-0-0-0	40-0-0-0
		Kyrgystan	4-0-0-0	---	---	---	---	---	---	---	---	---	---	---	4-0-0-0
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Turkmenistan	8-0-0-0	---	---	2-0-0-0	---	2-0-0-0	---	---	---	---	---	---	12-0-0-0
	Kavkaz Countries		0-0-2-0	---	---	---	---	---	---	---	---	---	---	---	0-0-2-0
	Slavic Baltic States		0-14-54-0	0-2-6-0	0-2-8-0	0-2-8-0	---	0-2-8-0	0-0-4-0	0-2-6-0	0-2-6-0	0-2-6-0	0-0-4-0	0-2-6-0	0-30-116-0
	Total		32-14-56-0	2-2-6-0	2-2-8-0	4-2-8-0	---	6-2-8-0	0-0-4-0	2-2-6-0	4-2-6-0	0-2-6-0	2-0-4-0	2-2-6-0	56-30-118-0
2005	Central Asia	Kazakhstan	10-10-0-0	4-0-0-0	4-0-0-0	4-0-0-0	---	4-0-0-0	2-0-0-0	4-0-0-0	4-0-0-0	2-0-0-0	2-0-0-0	4-0-0-0	44-10-0-0
		Kyrgystan	6-0-0-0	---	---	---	---	---	---	---	---	---	---	---	6-0-0-0
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Turkmenistan	12-0-0-0	---	---	4-0-0-0	---	2-0-0-0	---	---	---	---	---	---	18-0-0-0
	Kavkaz Countries		0-0-1-0	---	---	0-2-0-0	---	---	---	---	---	---	---	---	0-2-4-0
	Slavic Baltic States		0-20-78-0	0-2-8-0	0-2-10-0	0-2-10-0	---	0-2-12-0	0-2-6-0	0-2-8-0	0-2-10-0	0-2-8-0	0-2-6-0	0-2-8-0	0-40-161-0
	Total		28-30-82-0	4-2-8-0	4-2-10-0	8-4-10-0	---	6-2-12-0	2-2-6-0	4-2-8-0	4-2-10-0	2-2-8-0	2-2-6-0	4-2-8-0	68-52-168-0
2010	Central Asia	Kazakhstan	0-20-0-0	4-0-0-0	6-0-0-0	6-0-0-0	---	6-0-0-0	2-0-0-0	4-0-0-0	4-0-0-0	4-0-0-0	2-0-0-0	4-0-0-0	42-20-0-0
		Kyrgystan	8-0-0-0	---	---	---	---	---	---	---	---	---	---	---	8-0-0-0
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Turkmenistan	12-0-0-0	---	---	4-0-0-0	---	4-0-0-0	---	---	2-0-0-0	---	2-0-0-0	---	24-0-0-0
	Kavkaz Countries		0-0-4-0	---	---	0-2-0-0	---	0-2-0-0	---	---	---	---	---	---	0-4-4-0
	Slavic Baltic States		0-26-92-14	0-4-12-0	0-4-14-0	0-4-14-0	---	0-4-16-0	0-2-8-0	0-2-12-0	0-4-12-0	0-2-10-0	0-2-8-0	0-2-12-0	0-56-210-14
	Total		20-46-96-14	4-4-12-0	6-4-14-0	10-6-14-0	---	10-6-16-0	2-2-8-0	4-2-12-0	6-4-12-0	4-2-10-0	4-2-8-0	4-2-12-0	74-30-214-14
2015	Central Asia	Kazakhstan	0-8-8-0	6-0-0-0	6-0-0-0	6-0-0-0	---	8-0-0-0	4-0-0-0	6-0-0-0	6-0-0-0	4-0-0-0	4-0-0-0	6-0-0-0	56-8-8-0
		Kyrgystan	10-0-0-0	---	---	---	---	---	---	---	---	---	---	---	10-0-0-0
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Turkmenistan	14-0-0-0	---	2-0-0-0	4-0-0-0	---	4-0-0-0	---	---	4-0-0-0	---	2-0-0-0	---	30-0-0-0
	Kavkaz Countries		0-2-4-0	---	---	0-0-2-0	---	0-0-2-0	---	---	---	---	---	---	0-2-8-0
	Slavic Baltic States		0-31-116-16	0-4-16-0	0-4-18-0	0-4-18-0	---	0-6-20-0	0-2-10-0	0-4-14-0	0-4-16-0	0-4-12-0	0-2-8-0	0-4-14-0	0-72-262-16
	Total		24-41-128-16	6-4-16-0	8-4-18-0	10-4-20-0	---	12-6-22-0	4-2-12-0	6-4-14-0	10-4-16-0	4-4-12-0	6-2-8-0	6-4-14-0	96-52-278-16
2020	Central Asia	Kazakhstan	0-30-10-0	6-0-0-0	8-0-0-0	8-0-0-0	---	10-0-0-0	4-0-0-0	6-0-0-0	8-0-0-0	6-0-0-0	4-0-0-0	6-0-0-0	66-10-10-0
		Kyrgystan	10-0-0-0	---	---	2-0-0-0	---	---	---	---	---	---	---	---	12-0-0-0
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Turkmenistan	18-0-0-0	2-0-0-0	2-0-0-0	2-0-0-0	---	4-0-0-0	---	2-0-0-0	4-0-0-0	---	2-0-0-0	2-0-0-0	38-0-0-0
	Kavkaz Countries		0-2-4-0	---	---	0-0-2-0	---	0-0-2-0	---	---	0-2-0-0	---	---	---	0-4-8-0
	Slavic Baltic States		0-19-144-20	0-4-18-0	0-6-22-0	0-6-22-0	---	0-6-24-0	0-4-12-0	0-4-18-0	0-4-20-0	0-4-16-0	0-2-10-0	0-4-18-0	0-84-324-20
	Total		28-52-158-20	8-4-18-0	10-6-22-0	12-6-24-0	---	14-6-26-0	4-4-12-0	8-4-18-0	12-6-20-0	6-4-16-0	6-2-10-0	8-4-18-0	116-98-342-20

Table 4.2.44 Forecast of Weekly Aircraft Movements (Departure and Arrival) by Aircraft Type (Case 2)

subject to Mid Plane - Small Jet - Medium Jet - Large Jet

Year	Direction		Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total
2000	Central Asia	Kazakhstan	8-8-0-0	2-0-0-0	2-0-0-0	2-0-0-0	---	4-0-0-0	---	2-0-0-0	2-0-0-0	2-0-0-0	2-0-0-0	2-0-0-0	28-8-0-0
		Kyrgystan	4-0-0-0	---	---	---	---	---	---	---	---	---	---	---	4-0-0-0
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Turkmenistan	8-0-0-0	---	---	2-0-0-0	---	2-0-0-0	---	---	---	---	---	---	12-0-0-0
	Kavkaz Countries		0-0-2-0	---	---	---	---	---	---	---	---	---	---	---	0-0-2-0
	Slavic Baltic States		0-14-59-0	0-2-6-0	0-2-8-0	0-2-8-0	---	0-2-8-0	0-2-4-0	0-2-6-0	0-2-8-0	0-2-6-0	0-0-4-0	0-2-6-0	0-32-122-0
	Total		20-22-69-0	2-2-6-0	2-2-8-0	4-2-8-0	---	6-2-8-0	0-2-4-0	2-2-6-0	2-2-8-0	2-2-6-0	2-0-4-0	2-2-6-0	44-40-124-0
2005	Central Asia	Kazakhstan	0-16-0-0	4-0-0-0	4-0-0-0	4-0-0-0	---	6-0-0-0	2-0-0-0	4-0-0-0	4-0-0-0	4-0-0-0	2-0-0-0	4-0-0-0	38-16-0-0
		Kyrgystan	6-0-0-0	---	---	---	---	---	---	---	---	---	---	---	6-0-0-0
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Turkmenistan	12-0-0-0	---	---	4-0-0-0	---	4-0-0-0	---	---	2-0-0-0	---	---	---	22-0-0-0
	Kavkaz Countries		0-0-2-0	---	---	0-2-0-0	---	0-2-0-0	---	---	---	---	---	---	0-4-2-0
	Slavic Baltic States		0-22-92-0	0-2-10-0	0-4-12-0	0-4-12-0	---	0-4-14-0	0-2-6-0	0-2-10-0	0-2-12-0	0-2-8-0	0-2-6-0	0-2-10-0	0-48-192-0
	Total		18-38-92-0	4-2-10-0	4-4-12-0	8-6-12-0	---	10-6-14-0	2-2-6-0	4-2-10-0	6-2-12-0	4-2-8-0	2-2-6-0	4-2-10-0	66-68-194-0
2010	Central Asia	Kazakhstan	0-8-8-0	6-0-0-0	6-0-0-0	6-0-0-0	---	8-0-0-0	4-0-0-0	6-0-0-0	6-0-0-0	4-0-0-0	4-0-0-0	6-0-0-0	56-8-8-0
		Kyrgystan	10-0-0-0	---	---	---	---	---	---	---	---	---	---	---	10-0-0-0
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Turkmenistan	14-0-0-0	---	2-0-0-0	4-0-0-0	---	4-0-0-0	---	---	4-0-0-0	---	2-0-0-0	---	30-0-0-0
	Kavkaz Countries		0-2-4-0	---	---	0-0-2-0	---	0-0-2-0	---	---	---	---	---	---	0-2-8-0
	Slavic Baltic States		0-24-116-16	0-4-16-0	0-4-18-0	0-4-18-0	---	0-6-20-0	0-2-10-0	0-4-14-0	0-4-16-0	0-4-12-0	0-2-8-0	0-4-14-0	0-72-262-16
	Total		24-44-128-16	6-4-16-0	8-4-18-0	10-4-20-0	---	12-6-22-0	4-2-10-0	6-4-14-0	10-4-16-0	4-4-12-0	6-2-8-0	6-4-14-0	96-52-278-16
2015	Central Asia	Kazakhstan	0-0-16-0	8-0-0-0	10-0-0-0	10-0-0-0	---	10-0-0-0	4-0-0-0	8-0-0-0	8-0-0-0	6-0-0-0	4-0-0-0	8-0-0-0	76-0-16-0
		Kyrgystan	8-0-0-0	---	---	2-0-0-0	---	2-0-0-0	---	---	---	---	---	---	12-0-0-0
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Turkmenistan	20-0-0-0	2-0-0-0	2-0-0-0	2-0-0-0	---	4-0-0-0	---	2-0-0-0	4-0-0-0	---	2-0-0-0	2-0-0-0	40-0-0-0
	Kavkaz Countries		0-2-4-0	---	---	0-0-2-0	---	0-0-2-0	---	---	0-2-0-0	---	0-2-0-0	---	0-6-8-0
	Slavic Baltic States		0-16-160-22	0-6-20-0	0-6-24-0	0-6-26-0	---	0-6-28-0	0-4-14-0	0-4-20-0	0-6-22-0	0-4-18-0	0-4-12-0	0-6-20-0	0-98-364-22
	Total		28-18-190-22	10-6-20-0	12-6-24-0	14-6-28-0	---	16-6-30-0	4-4-14-0	10-6-20-0	12-8-22-0	6-4-18-0	6-6-12-0	10-6-20-0	128-104-388-22
2020	Central Asia	Kazakhstan	0-0-22-0	10-0-0-0	12-0-0-0	12-0-0-0	---	14-0-0-0	6-0-0-0	10-0-0-0	10-0-0-0	8-0-0-0	6-0-0-0	10-0-0-0	98-0-22-0
		Kyrgystan	10-0-0-0	---	---	4-0-0-0	---	2-0-0-0	---	---	---	---	---	---	16-0-0-0
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Turkmenistan	8-8-0-0	2-0-0-0	4-0-0-0	4-0-0-0	---	4-0-0-0	2-0-0-0	2-0-0-0	4-0-0-0	2-0-0-0	2-0-0-0	2-0-0-0	36-8-0-0
	Kavkaz Countries		0-2-6-0	---	0-2-0-0	0-0-2-0	---	0-0-2-0	---	---	0-0-2-0	---	0-2-0-0	---	0-6-12-0
	Slavic Baltic States		0-60-212-30	0-6-28-0	0-8-32-0	0-8-34-0	---	0-10-36-0	0-4-18-0	0-6-26-0	0-8-30-0	0-6-24-0	0-4-16-0	0-6-28-0	0-126-451-30
	Total		18-70-240-30	12-6-28-0	16-10-32-0	20-8-36-0	---	20-10-38-0	8-4-18-0	12-6-26-0	14-8-32-0	10-6-24-0	8-6-16-0	12-6-28-0	150-110-518-30

Table 4.2.45 Forecast of Weekly Aircraft Movements (Departure and Arrival) by Aircraft Type (Case 3)

subject to Mid Plane - Small Jet - Medium Jet - Large Jet

Year	Direction		Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total
2000	Central Asia	Kazakhstan	16-0-0-0	2-0-0-0	2-0-0-0	2-0-0-0	---	6-0-0-0	---	---	4-0-0-0	---	2-0-0-0	---	34-0-0-0
		Kyrgystan	4-0-0-0	---	---	---	---	---	---	---	---	---	---	---	4-0-0-0
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Turkmenistan	10-0-0-0	---	---	---	---	---	---	---	---	---	---	---	10-0-0-0
	Kavkaz Countries		0-0-2-0	---	---	---	---	---	---	---	---	---	---	---	0-0-2-0
	Slavic Baltic States		0-12-46-0	0-2-6-0	0-2-6-0	0-2-6-0	---	0-2-6-0	0-0-4-0	0-2-4-0	0-2-6-0	0-2-8-0	0-0-4-0	0-2-6-0	0-28-98-0
	Total		30-12-48-0	2-2-6-0	2-2-6-0	2-2-6-0	---	6-2-6-0	0-0-4-0	0-2-4-0	4-2-6-0	0-2-8-0	2-0-4-0	0-2-6-0	48-29-100-0
2005	Central Asia	Kazakhstan	8-0-0-0	2-0-0-0	2-0-0-0	4-0-0-0	---	4-0-0-0	---	2-0-0-0	2-0-0-0	2-0-0-0	2-0-0-0	2-0-0-0	30-0-0-0
		Kyrgystan	4-0-0-0	---	---	---	---	---	---	---	---	---	---	---	4-0-0-0
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Turkmenistan	8-0-0-0	---	---	2-0-0-0	---	2-0-0-0	---	---	---	---	---	---	12-0-0-0
	Kavkaz Countries		0-0-2-0	---	---	---	---	---	---	---	---	---	---	---	0-0-2-0
	Slavic Baltic States		0-18-58-0	0-2-6-0	0-2-8-0	0-2-8-0	---	0-2-8-0	0-2-4-0	0-2-6-0	0-2-8-0	0-2-6-0	0-0-4-0	0-2-6-0	0-32-122-0
	Total		20-22-60-0	2-2-6-0	2-2-8-0	6-2-8-0	---	6-2-8-0	0-2-4-0	2-2-6-0	2-2-8-0	2-2-6-0	2-0-4-0	2-2-6-0	46-40-124-0
2010	Central Asia	Kazakhstan	8-0-0-0	4-0-0-0	4-0-0-0	4-0-0-0	---	4-0-0-0	2-0-0-0	2-0-0-0	4-0-0-0	2-0-0-0	2-0-0-0	2-0-0-0	38-0-0-0
		Kyrgystan	4-0-0-0	---	---	---	---	---	---	---	---	---	---	---	4-0-0-0
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Turkmenistan	10-0-0-0	---	---	4-0-0-0	---	2-0-0-0	---	---	---	---	---	---	16-0-0-0
	Kavkaz Countries		0-0-4-0	---	---	---	---	---	---	---	---	---	---	---	0-0-4-0
	Slavic Baltic States		0-18-72-0	0-2-8-0	0-2-10-0	0-2-10-0	---	0-2-10-0	0-2-6-0	0-2-8-0	0-2-8-0	0-2-6-0	0-2-4-0	0-2-8-0	0-38-150-0
	Total		22-26-76-0	4-2-8-0	4-2-10-0	8-2-10-0	---	6-2-10-0	2-2-6-0	2-2-8-0	4-2-8-0	2-2-6-0	2-2-4-0	2-2-8-0	58-46-154-0
2015	Central Asia	Kazakhstan	8-16-0-0	4-0-0-0	4-0-0-0	4-0-0-0	---	4-0-0-0	2-0-0-0	4-0-0-0	4-0-0-0	4-0-0-0	2-0-0-0	4-0-0-0	36-16-0-0
		Kyrgystan	6-0-0-0	---	---	---	---	---	---	---	---	---	---	---	6-0-0-0
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Turkmenistan	10-0-0-0	---	---	4-0-0-0	---	4-0-0-0	---	---	2-0-0-0	---	---	---	20-0-0-0
	Kavkaz Countries		0-0-4-0	---	---	0-2-0-0	---	---	---	---	---	---	---	---	0-2-4-0
	Slavic Baltic States		0-22-84-0	0-2-10-0	0-2-12-0	0-2-12-0	---	0-4-12-0	0-2-6-0	0-2-10-0	0-2-10-0	0-2-8-0	0-2-6-0	0-2-10-0	0-44-150-0
	Total		16-38-88-0	4-2-10-0	4-2-12-0	8-4-12-0	---	8-4-12-0	2-2-6-0	4-2-10-0	6-2-10-0	4-2-8-0	2-2-6-0	4-2-10-0	62-62-181-0
2020	Central Asia	Kazakhstan	0-18-0-0	4-0-0-0	4-0-0-0	6-0-0-0	---	6-0-0-0	2-0-0-0	4-0-0-0	4-0-0-0	4-0-0-0	2-0-0-0	4-0-0-0	40-18-0-0
		Kyrgystan	6-0-0-0	---	---	---	---	---	---	---	---	---	---	---	6-0-0-0
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Turkmenistan	12-0-0-0	---	---	4-0-0-0	---	4-0-0-0	---	---	2-0-0-0	---	---	---	22-0-0-0
	Kavkaz Countries		0-0-4-0	---	---	0-2-0-0	---	0-2-0-0	---	---	---	---	---	---	0-4-4-0
	Slavic Baltic States		0-24-98-0	0-2-12-0	0-4-14-0	0-4-14-0	---	0-4-14-0	0-2-8-0	0-2-10-0	0-2-12-0	0-2-10-0	0-2-6-0	0-2-10-0	0-50-208-0
	Total		18-42-102-0	4-2-12-0	4-4-14-0	10-6-14-0	---	10-6-14-0	2-2-8-0	4-2-10-0	6-2-12-0	4-2-10-0	2-2-6-0	4-2-10-0	68-72-212-0

Table 4.2.46 Forecast of Weekly Aircraft Movements (Departure and Arrival) by Aircraft Type (Case 1)

Year	Route	Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi (subject to Medium Jet - Large Jet)	Urgench (subject to Medium Jet - Large Jet)	Nukus (subject to Medium Jet - Large Jet)	Total
2000	North America	0-2-0	---	---	---	---	---	---	---	---	---	---	---	0-2-0
	Europe	0-26-0	---	---	0-6-0	---	0-6-0	---	---	0-4-0	---	0-2-0	---	0-44-0
	Middle East	0-12-0	---	---	0-2-0	---	0-2-0	---	---	---	---	---	---	0-16-0
	A&P West	0-12-0	---	---	0-2-0	---	0-2-0	---	---	---	---	---	---	0-16-0
	A&P Central	0-6-0	---	---	---	---	---	---	---	---	---	---	---	0-6-0
	A&P East	0-8-0	---	---	---	---	---	---	---	---	---	---	---	0-8-0
	Total	0-66-0	---	---	0-10-0	---	0-10-0	---	---	0-4-0	---	0-2-0	---	0-92-0
2005	North America	0-4-0	---	---	---	---	---	---	---	---	---	---	---	0-4-0
	Europe	0-39-0	0-2-0	0-2-0	0-4-0	---	0-6-0	---	0-2-0	0-4-0	---	0-2-0	---	0-60-0
	Middle East	0-16-0	---	---	0-4-0	---	0-4-0	---	---	0-2-0	---	---	---	0-26-0
	A&P West	0-16-0	---	---	0-2-0	---	0-4-0	---	---	0-2-0	---	---	---	0-24-0
	A&P Central	0-8-0	---	---	---	---	---	---	---	---	---	---	---	0-8-0
	A&P East	0-12-0	---	---	---	---	---	---	---	---	---	---	---	0-12-0
	Total	0-91-0	0-2-0	0-2-0	0-10-0	---	0-14-0	---	0-2-0	0-8-0	---	0-2-0	---	0-134-0
2010	North America	0-0-6	---	---	---	---	---	---	---	---	---	---	---	0-0-6
	Europe	0-43-6	0-2-0	0-2-0	0-4-0	---	0-6-0	0-2-0	0-2-0	0-6-0	---	0-2-0	0-2-0	0-76-6
	Middle-East	0-22-0	---	---	0-4-0	---	0-4-0	---	---	0-2-0	---	---	---	0-32-0
	A&P West	0-20-0	---	---	0-4-0	---	0-4-0	---	---	0-2-0	---	---	---	0-30-0
	A&P Central	0-10-0	---	---	---	---	---	---	---	---	---	---	---	0-10-0
	A&P East	0-12-0	---	---	0-2-0	---	0-2-0	---	---	---	---	---	---	0-16-0
	Total	0-112-12	0-2-0	0-2-0	0-14-0	---	0-16-0	0-2-0	0-2-0	0-10-0	---	0-2-0	0-2-0	0-164-12
2015	North America	0-0-6	---	---	---	---	---	---	---	---	---	---	---	0-0-6
	Europe	0-60-6	0-4-0	0-4-0	0-6-0	---	0-8-0	0-2-0	0-4-0	0-6-0	0-2-0	0-2-0	0-2-0	0-100-6
	Middle-East	0-26-0	---	---	0-6-0	---	0-6-0	---	---	0-4-0	---	0-2-0	---	0-44-0
	A&P West	0-26-0	---	---	0-4-0	---	0-6-0	---	---	0-4-0	---	---	---	0-40-0
	A&P Central	0-12-0	---	---	---	---	0-2-0	---	---	---	---	---	---	0-14-0
	A&P East	0-14-0	---	---	0-2-0	---	0-2-0	---	---	---	---	---	---	0-18-0
	Total	0-138-12	0-4-0	0-4-0	0-18-0	---	0-24-0	0-2-0	0-1-0	0-14-0	0-2-0	0-4-0	0-2-0	0-216-12
2020	North America	0-0-8	---	---	---	---	---	---	---	---	---	---	---	0-0-8
	Europe	0-74-8	0-4-0	0-4-0	0-8-0	---	0-10-0	0-2-0	0-4-0	0-8-0	0-2-0	0-2-0	0-4-0	0-122-8
	Middle-East	0-34-0	---	---	0-6-0	---	0-8-0	---	---	0-4-0	---	0-2-0	---	0-54-0
	A&P West	0-30-0	---	---	0-6-0	---	0-6-0	---	---	0-4-0	---	0-2-0	---	0-48-0
	A&P Central	0-12-0	---	---	0-2-0	---	0-2-0	---	---	---	---	---	---	0-16-0
	A&P East	0-16-0	---	---	0-2-0	---	0-4-0	---	---	0-2-0	---	---	---	0-24-0
	Total	0-166-16	0-4-0	0-4-0	0-24-0	---	0-30-0	0-2-0	0-4-0	0-18-0	0-2-0	0-6-0	0-4-0	0-264-16

(note) A&P : Asia and Pacific

Table 4.2.47 Forecast of Weekly Aircraft Movements (Departure and Arrival) by Aircraft Type (Case 2)

Year	Route	Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi (subject to Medium Jet - Large Jet)	Urgench (subject to Medium Jet - Large Jet)	Nukus (subject to Medium Jet - Large Jet)	Total
2000	North America	0-2-0	---	---	---	---	---	---	---	---	---	---	---	0-2-0
	Europe	0-26-0	---	---	0-6-0	---	0-6-0	---	---	0-4-0	---	0-2-0	---	0-44-0
	Middle-East	0-12-0	---	---	0-2-0	---	0-2-0	---	---	---	---	---	---	0-16-0
	A&P West	0-12-0	---	---	0-2-0	---	0-2-0	---	---	---	---	---	---	0-16-0
	A&P Central	0-6-0	---	---	---	---	---	---	---	---	---	---	---	0-6-0
	A&P East	0-8-0	---	---	---	---	---	---	---	---	---	---	---	0-8-0
	Total	0-66-0	---	---	0-10-0	---	0-10-0	---	---	0-4-0	---	0-2-0	---	0-92-0
2005	North America	0-0-4	---	---	---	---	---	---	---	---	---	---	---	0-0-4
	Europe	0-38-4	0-2-0	0-2-0	0-4-0	---	0-6-0	---	0-2-0	0-6-0	---	0-2-0	---	0-62-4
	Middle East	0-18-0	---	---	0-4-0	---	0-4-0	---	---	0-2-0	---	---	---	0-28-0
	A&P West	0-16-0	---	---	0-4-0	---	0-4-0	---	---	0-2-0	---	---	---	0-26-0
	A&P Central	0-8-0	---	---	---	---	---	---	---	---	---	---	---	0-8-0
	A&P East	0-12-0	---	---	---	---	---	---	---	---	---	---	---	0-12-0
	Total	0-92-8	0-2-0	0-2-0	0-12-0	---	0-14-0	---	0-2-0	0-10-0	---	0-2-0	---	0-136-8
2010	North America	0-0-6	---	---	---	---	---	---	---	---	---	---	---	0-0-6
	Europe	0-52-6	0-2-0	0-4-0	0-4-0	---	0-8-0	0-2-0	0-2-0	0-8-0	---	0-2-0	0-2-0	0-86-6
	Middle-East	0-24-0	---	---	0-4-0	---	0-6-0	---	---	0-4-0	---	---	---	0-38-0
	A&P West	0-22-0	---	---	0-4-0	---	0-4-0	---	---	0-2-0	---	---	---	0-32-0
	A&P Central	0-12-0	---	---	---	---	---	---	---	---	---	---	---	0-12-0
	A&P East	0-12-0	---	---	0-2-0	---	0-2-0	---	---	---	---	---	---	0-16-0
	Total	0-122-12	0-2-0	0-4-0	0-14-0	---	0-20-0	0-2-0	0-2-0	0-14-0	---	0-2-0	0-2-0	0-184-12
2015	North America	0-0-8	---	---	---	---	---	---	---	---	---	---	---	0-0-8
	Europe	0-65-8	0-4-0	0-4-0	0-6-0	---	0-10-0	0-2-0	0-4-0	0-8-0	0-2-0	0-2-0	0-2-0	0-112-8
	Middle-East	0-30-0	---	---	0-6-0	---	0-6-0	---	---	0-4-0	---	0-2-0	---	0-48-0
	A&P West	0-28-0	---	---	0-6-0	---	0-6-0	---	---	0-4-0	---	0-2-0	---	0-46-0
	A&P Central	0-10-0	---	---	0-2-0	---	0-2-0	---	---	---	---	---	---	0-14-0
	A&P East	0-16-0	---	---	0-2-0	---	0-2-0	---	---	---	---	---	---	0-20-0
	Total	0-152-16	0-4-0	0-4-0	0-22-0	---	0-26-0	0-2-0	0-4-0	0-16-0	0-2-0	0-6-0	0-2-0	0-240-16
2020	North America	0-0-10	---	---	---	---	---	---	---	---	---	---	---	0-0-10
	Europe	0-85-10	0-4-0	0-6-0	0-8-0	---	0-12-0	0-4-0	0-4-0	0-10-0	0-2-0	0-2-0	0-4-0	0-140-10
	Middle-East	0-38-0	0-2-0	0-2-0	0-4-0	---	0-8-0	---	---	0-4-0	---	0-2-0	---	0-60-0
	A&P West	0-34-0	---	0-2-0	0-6-0	---	0-8-0	---	---	0-4-0	---	0-2-0	---	0-56-0
	A&P Central	0-14-0	---	---	0-2-0	---	0-2-0	---	---	---	---	---	---	0-18-0
	A&P East	0-18-0	---	---	0-4-0	---	0-6-0	---	---	0-2-0	---	---	---	0-28-0
	Total	0-189-20	0-6-0	0-10-0	0-24-0	---	0-34-0	0-4-0	0-4-0	0-20-0	0-2-0	0-6-0	0-4-0	0-302-20

(note) A&P : Asia and Pacific

Table 4.2.49 Forecast of Weekly Aircraft Movements (Departure and Arrival) by Aircraft Type (Case 3)

Year	Route	Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	subject to Medium Jet - Large Jet Navoi	Urgench	Nukus	Total
2000	North America	0-2-0	---	---	---	---	---	---	---	---	---	---	---	0-2-0
	Europe	0-28-0	---	---	0-1-0	---	0-6-0	---	---	0-4-0	---	---	---	0-42-0
	Middle East	0-12-0	---	---	0-2-0	---	0-2-0	---	---	---	---	---	---	0-16-0
	A&P West	0-12-0	---	---	0-2-0	---	0-2-0	---	---	---	---	---	---	0-16-0
	A&P Central	0-6-0	---	---	---	---	---	---	---	---	---	---	---	0-6-0
	A&P East	0-8-0	---	---	---	---	---	---	---	---	---	---	---	0-8-0
	Total	0-68-0	---	---	0-3-0	---	0-10-0	---	---	0-4-0	---	---	---	0-90-0
2005	North America	0-4-0	---	---	---	---	---	---	---	---	---	---	---	0-4-0
	Europe	0-36-0	0-2-0	0-2-0	0-4-0	---	0-8-0	---	---	0-4-0	---	0-2-0	---	0-58-0
	Middle East	0-16-0	---	---	0-2-0	---	0-4-0	---	---	0-2-0	---	---	---	0-24-0
	A&P West	0-16-0	---	---	0-2-0	---	0-2-0	---	---	---	---	---	---	0-20-0
	A&P Central	0-8-0	---	---	---	---	---	---	---	---	---	---	---	0-8-0
	A&P East	0-10-0	---	---	---	---	---	---	---	---	---	---	---	0-10-0
	Total	0-90-0	0-2-0	0-2-0	0-8-0	---	0-14-0	---	---	0-6-0	---	0-2-0	---	0-124-0
2010	North America	0-0-4	---	---	---	---	---	---	---	---	---	---	---	0-0-4
	Europe	0-42-4	0-2-0	0-2-0	0-4-0	---	0-8-0	---	0-2-0	0-6-0	---	0-4-0	---	0-70-4
	Middle East	0-20-0	---	---	0-4-0	---	0-4-0	---	---	0-2-0	---	---	---	0-30-0
	A&P West	0-18-0	---	---	0-4-0	---	0-4-0	---	---	0-2-0	---	---	---	0-28-0
	A&P Central	0-10-0	---	---	---	---	---	---	---	---	---	---	---	0-10-0
	A&P East	0-12-0	---	---	---	---	0-2-0	---	---	---	---	---	---	0-14-0
	Total	0-102-8	0-2-0	0-2-0	0-12-0	---	0-18-0	---	0-2-0	0-10-0	---	0-4-0	---	0-152-8
2015	North America	0-0-6	---	---	---	---	---	---	---	---	---	---	---	0-0-6
	Europe	0-52-6	0-4-0	0-4-0	0-6-0	---	0-8-0	0-2-0	0-2-0	0-8-0	---	0-2-0	0-2-0	0-90-6
	Middle East	0-26-0	---	---	0-4-0	---	0-6-0	---	---	0-4-0	---	---	---	0-46-0
	A&P West	0-22-0	---	---	0-4-0	---	0-4-0	---	---	0-2-0	---	---	---	0-32-0
	A&P Central	0-12-0	---	---	---	---	---	---	---	---	---	---	---	0-12-0
	A&P East	0-12-0	---	---	0-2-0	---	0-2-0	---	---	---	---	---	---	0-16-0
	Total	0-124-12	0-4-0	0-4-0	0-16-0	---	0-20-0	0-2-0	0-2-0	0-14-0	---	0-2-0	0-2-0	0-190-12
2020	North America	0-0-6	---	---	---	---	---	---	---	---	---	---	---	0-0-6
	Europe	0-62-6	0-4-0	0-4-0	0-6-0	---	0-8-0	0-2-0	0-4-0	0-6-0	0-2-0	0-2-0	0-2-0	0-102-6
	Middle East	0-28-0	---	---	0-6-0	---	0-6-0	---	---	0-4-0	---	0-2-0	---	0-46-0
	A&P West	0-26-0	---	---	0-6-0	---	0-6-0	---	---	0-4-0	---	0-2-0	---	0-44-0
	A&P Central	0-12-0	---	---	---	---	0-2-0	---	---	---	---	---	---	0-14-0
	A&P East	0-14-0	---	---	0-2-0	---	0-2-0	---	---	---	---	---	---	0-18-0
	Total	0-142-12	0-4-0	0-4-0	0-20-0	---	0-24-0	0-2-0	0-8-0	0-16-0	0-2-0	0-6-0	0-2-0	0-224-12

(note) A&P : Asia and Pacific

Table 4.2.49 Forecast of Annual Inter-CIS Cargo Freighter Movements (Departure and Arrival) (Case 1)

subject to ol Axle : Mid Plane

Other Directions : Medium Jet

Year	Direction		Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total
2000	Central Asia	Kazakhstan	6	...	2	6	...	...	...	4	6	...	...	...	24
		Kyrgystan	...	...	...	...	...	...	...	...	...	...	...	...	...
		Tajikistan	...	...	...	...	...	...	...	...	...	...	...	...	...
		Turkmenistan	...	...	...	...	...	...	...	...	...	...	...	...	...
	Kavkaz Countries		...	...	...	...	...	...	...	...	...	...	...	...	...
	Slavic Baltic States		106	2	16	42	...	4	6	28	14	32	10	...	260
	Total		112	2	18	48	...	4	6	32	20	32	10	...	284
2005	Central Asia	Kazakhstan	6	...	4	10	...	...	...	4	6	8	2	...	40
		Kyrgystan	...	...	...	...	...	...	...	...	...	...	...	...	...
		Tajikistan	...	...	...	...	...	...	...	...	...	...	...	...	...
		Turkmenistan	...	...	...	...	...	...	...	...	...	...	...	...	...
	Kavkaz Countries		...	...	...	...	...	...	...	...	...	...	...	...	...
	Slavic Baltic States		198	8	36	78	...	8	10	50	29	58	16	...	486
	Total		204	8	40	88	...	8	10	54	30	66	18	...	526
2010	Central Asia	Kazakhstan	6	...	4	12	...	...	2	8	6	10	4	...	52
		Kyrgystan	...	...	...	...	...	...	...	...	...	...	...	...	...
		Tajikistan	...	...	...	...	...	...	...	...	...	...	...	...	...
		Turkmenistan	...	...	...	...	...	...	...	...	...	...	...	...	...
	Kavkaz Countries		...	...	...	...	...	...	...	...	...	...	...	...	...
	Slavic Baltic States		280	8	52	110	...	11	16	70	39	86	24	...	698
	Total		286	8	56	122	...	11	18	78	41	96	28	...	750
2015	Central Asia	Kazakhstan	6	...	8	20	...	...	2	10	6	16	4	...	72
		Kyrgystan	...	...	...	...	...	...	...	...	...	...	...	...	...
		Tajikistan	...	...	...	...	...	...	...	...	...	...	...	...	...
		Turkmenistan	...	2	...	...	...	...	...	...	...	...	...	...	2
	Kavkaz Countries		...	...	...	...	...	...	...	...	...	...	...	...	...
	Slavic Baltic States		390	10	68	146	...	20	22	96	50	114	40	4	960
	Total		396	12	76	166	...	20	24	106	56	130	44	4	1,034
2020	Central Asia	Kazakhstan	6	...	8	22	...	...	4	16	6	18	6	...	86
		Kyrgystan	...	...	...	...	...	...	...	...	...	...	...	...	...
		Tajikistan	...	...	...	...	...	...	...	...	...	...	...	...	...
		Turkmenistan	...	2	...	...	...	...	...	...	...	...	...	...	2
	Kavkaz Countries		...	...	...	...	...	...	...	...	...	...	...	...	...
	Slavic Baltic States		430	20	86	182	...	30	28	118	64	140	50	4	1,212
	Total		456	22	94	204	...	30	32	134	70	158	56	4	1,300

Table 4.2.50 Forecast of Annual Inter-CIS Cargo Freighter Movements (Departure and Arrival) (Case 2)

subject to ol Axle : Mid Plane

Other Directions : Medium Jet

Year	Direction		Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total
2000	Central Asia	Kazakhstan	...	...	4	8	...	...	...	4	2	4	...	...	22
		Kyrgystan	...	...	...	...	...	...	...	...	...	...	...	...	...
		Tajikistan	...	...	...	...	...	...	...	...	...	...	...	...	...
		Turkmenistan	...	...	...	...	...	...	...	...	...	...	...	...	...
	Kavkaz Countries		...	...	...	...	...	...	...	...	...	...	...	...	...
	Slavic Baltic States		122	4	22	50	...	6	6	32	12	28	12	...	304
	Total		122	4	26	58	...	6	6	36	14	32	12	...	326
2005	Central Asia	Kazakhstan	8	...	6	12	...	...	2	6	2	8	2	...	46
		Kyrgystan	...	...	...	...	...	...	...	...	...	...	...	...	...
		Tajikistan	...	...	...	...	...	...	...	...	...	...	...	...	...
		Turkmenistan	...	...	...	...	...	...	...	...	...	...	...	...	...
	Kavkaz Countries		...	...	...	...	...	...	...	...	...	...	...	...	...
	Slavic Baltic States		244	8	42	92	...	10	16	60	28	74	24	...	598
	Total		252	8	48	104	...	10	18	66	30	82	26	...	644
2010	Central Asia	Kazakhstan	8	...	8	18	...	...	2	10	4	16	2	...	68
		Kyrgystan	...	...	...	...	...	...	...	...	...	...	...	...	...
		Tajikistan	...	...	...	...	...	...	...	...	...	...	...	...	...
		Turkmenistan	...	2	...	...	...	...	...	...	...	...	...	...	2
	Kavkaz Countries		...	...	...	...	...	...	...	...	...	...	...	...	...
	Slavic Baltic States		382	10	68	144	...	20	22	94	50	111	40	2	934
	Total		390	12	76	162	...	20	24	104	54	130	42	2	1,016
2015	Central Asia	Kazakhstan	8	...	8	24	...	...	4	14	6	22	6	...	92
		Kyrgystan	...	...	...	...	...	...	...	...	...	...	...	...	...
		Tajikistan	...	...	...	...	...	...	...	...	...	...	...	...	...
		Turkmenistan	...	2	...	...	...	...	...	...	...	...	...	...	2
	Kavkaz Countries		...	...	...	...	...	...	...	...	2	...	...	...	2
	Slavic Baltic States		554	20	100	200	...	22	30	132	72	158	54	4	1,356
	Total		562	22	108	224	...	22	34	146	80	180	60	4	1,452
2020	Central Asia	Kazakhstan	8	...	14	34	...	...	4	22	10	28	8	...	128
		Kyrgystan	...	...	...	...	...	...	...	...	...	...	...	...	...
		Tajikistan	...	...	...	...	...	...	...	...	...	...	...	...	...
		Turkmenistan	...	2	...	...	...	...	...	...	...	...	...	...	2
	Kavkaz Countries		...	...	...	...	...	...	...	...	2	...	...	...	2
	Slavic Baltic States		762	26	136	272	...	46	46	182	96	214	72	4	1,858
	Total		770	28	150	306	...	46	50	204	108	242	80	4	1,990

Table 4.2.51 Forecast of Annual Inter-CIS Cargo Freighter Movements (Departure and Arrival) (Case 3)

subject to ... al Asia : Mid-Haul
Other Directions : Medium Jet

Year	Direction		Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Kwasli	Bukhara	Navoi	Urgench	Nukus	Total
2000	Central Asia	Kazakhstan	6	---	2	8	---	---	---	---	4	---	2	---	18
		Kyrgystan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Turkmenistan	---	---	---	---	---	---	---	---	---	---	---	---	---
	Kavkaz Countries		---	---	---	---	---	---	---	---	---	---	---	---	---
	Slavic Baltic States		78	---	14	36	---	4	2	26	8	28	6	---	202
	Total		84	---	16	44	---	4	2	26	12	28	8	---	220
2005	Central Asia	Kazakhstan	6	---	4	4	---	---	---	4	4	6	2	---	30
		Kyrgystan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Turkmenistan	---	---	---	---	---	---	---	---	---	---	---	---	---
	Kavkaz Countries		---	---	---	---	---	---	---	---	---	---	---	---	---
	Slavic Baltic States		132	4	22	52	---	8	8	34	14	40	12	---	328
	Total		138	4	26	56	---	8	8	38	18	46	16	---	358
2010	Central Asia	Kazakhstan	10	---	4	8	---	---	---	6	4	8	2	---	42
		Kyrgystan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Turkmenistan	---	---	---	---	---	---	---	---	---	---	---	---	---
	Kavkaz Countries		---	---	---	---	---	---	---	---	---	---	---	---	---
	Slavic Baltic States		176	4	30	68	---	10	8	44	24	56	20	---	410
	Total		186	4	34	76	---	10	8	50	28	64	22	---	482
2015	Central Asia	Kazakhstan	10	---	4	10	---	---	2	6	4	8	2	---	46
		Kyrgystan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Turkmenistan	---	---	---	---	---	---	---	---	---	---	---	---	---
	Kavkaz Countries		---	---	---	---	---	---	---	---	---	---	---	---	---
	Slavic Baltic States		228	6	38	84	---	12	14	52	30	68	26	---	552
	Total		238	6	42	94	---	12	16	58	34	76	28	---	598
2020	Central Asia	Kazakhstan	10	---	6	10	---	---	2	8	4	8	4	---	52
		Kyrgystan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Tajikistan	---	---	---	---	---	---	---	---	---	---	---	---	---
		Turkmenistan	---	---	---	---	---	---	---	---	---	---	---	---	---
	Kavkaz Countries		---	---	---	---	---	---	---	---	---	---	---	---	---
	Slavic Baltic States		274	6	44	98	---	16	14	68	34	78	28	4	664
	Total		284	6	50	108	---	16	16	76	38	86	32	4	716

Table 4.2.52 Forecast of Annual International Cargo Freighter Movements (Departure and Arrival) (Case 1)

subject to All Directions : Medium Jet

Year	Route	Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total
2000	North America	8	---	---	---	---	---	---	---	---	---	---	---	8
	Europe	70	10	---	36	---	29	---	---	30	---	14	---	189
	Middle East	452	26	---	126	---	108	---	---	---	---	---	---	712
	A&P West	18	2	---	8	---	6	---	---	---	---	---	---	34
	A&P Central	142	6	---	---	---	---	---	---	---	---	---	---	148
	A&P East	50	2	---	---	---	---	---	---	---	---	---	---	52
	Total	740	46	---	170	---	142	---	---	30	---	14	---	1,182
2005	North America	10	---	---	---	---	---	---	---	---	---	---	---	10
	Europe	116	10	26	40	---	28	---	30	54	---	24	---	328
	Middle East	516	40	---	192	---	164	---	---	154	---	---	---	1,066
	A&P West	18	4	---	18	---	8	---	---	12	---	---	---	60
	A&P Central	224	8	---	---	---	---	---	---	---	---	---	---	232
	A&P East	78	4	---	---	---	---	---	---	---	---	---	---	82
	Total	992	66	26	250	---	200	---	30	220	---	24	---	1,908
2010	North America	12	2	---	---	---	---	---	---	---	---	---	---	14
	Europe	154	16	38	58	---	28	14	44	72	---	24	12	460
	Middle East	750	54	---	270	---	232	---	---	214	---	---	---	1,520
	A&P West	30	6	---	20	---	16	---	---	20	---	---	---	92
	A&P Central	310	12	---	---	---	---	---	---	---	---	---	---	322
	A&P East	78	6	---	22	---	18	---	---	---	---	---	---	124
	Total	1,334	96	38	370	---	294	14	44	306	---	24	12	2,532
2015	North America	22	2	---	---	---	---	---	---	---	---	---	---	24
	Europe	208	16	46	72	---	28	18	52	72	64	24	16	616
	Middle East	838	70	---	342	---	294	---	---	270	---	122	---	1,936
	A&P West	38	8	---	30	---	16	---	---	20	---	---	---	112
	A&P Central	332	16	---	---	---	62	---	---	---	---	---	---	410
	A&P East	92	8	---	30	---	26	---	---	---	---	---	---	156
	Total	1,530	120	46	474	---	426	18	52	362	64	146	16	3,254
2020	North America	24	2	---	---	---	---	---	---	---	---	---	---	26
	Europe	252	22	58	88	---	28	24	66	72	80	30	16	736
	Middle East	1,022	86	---	424	---	358	---	---	334	---	152	---	2,376
	A&P West	38	10	---	32	---	26	---	---	28	---	12	---	146
	A&P Central	332	18	---	90	---	78	---	---	---	---	---	---	518
	A&P East	92	8	---	40	---	26	---	---	30	---	---	---	196
	Total	1,760	146	58	674	---	516	24	66	464	80	194	16	3,998

(note) A&P : Asia and Pacific

Table 4.2.53 Forecast of Annual International Cargo Freighter Movements (Departure and Arrival) (Case 2)

subject to All Directions : Medium Jet

Year	Route	Tashkent	Namangan	Andizhan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total
2000	North America	8	---	---	---	---	---	---	---	---	---	---	---	8
	Europe	74	10	---	36	---	30	---	---	30	---	14	---	194
	Middle East	460	26	---	128	---	110	---	---	---	---	---	---	724
	A&P West	18	4	---	10	---	8	---	---	---	---	---	---	40
	A&P Central	141	6	---	---	---	---	---	---	---	---	---	---	150
	A&P East	52	2	---	---	---	---	---	---	---	---	---	---	54
	Total	756	48	---	174	---	148	---	---	30	---	14	---	1,170
2005	North America	12	---	---	---	---	---	---	---	---	---	---	---	12
	Europe	112	10	28	42	---	30	---	32	50	---	26	---	330
	Middle East	560	42	---	200	---	172	---	---	160	---	---	---	1,134
	A&P West	20	4	---	12	---	8	---	---	12	---	---	---	56
	A&P Central	237	8	---	---	---	---	---	---	---	---	---	---	245
	A&P East	92	4	---	---	---	---	---	---	---	---	---	---	96
	Total	1,018	68	28	254	---	210	---	32	222	---	26	---	1,858
2010	North America	14	2	---	---	---	---	---	---	---	---	---	---	16
	Europe	160	18	34	64	---	30	14	46	70	---	26	12	474
	Middle East	790	58	---	286	---	238	---	---	226	---	---	---	1,592
	A&P West	30	6	---	22	---	18	---	---	20	---	---	---	96
	A&P Central	324	12	---	---	---	---	---	---	---	---	---	---	336
	A&P East	82	8	---	24	---	20	---	---	---	---	---	---	132
	Total	1,400	102	34	396	---	306	14	46	340	---	26	12	2,676
2015	North America	18	2	---	---	---	---	---	---	---	---	---	---	20
	Europe	210	18	50	80	---	30	20	56	70	70	26	18	648
	Middle East	900	76	---	372	---	318	---	---	292	---	134	---	2,092
	A&P West	30	8	---	26	---	20	---	---	22	---	10	---	116
	A&P Central	324	16	---	80	---	68	---	---	---	---	---	---	488
	A&P East	96	8	---	34	---	28	---	---	---	---	---	---	166
	Total	1,578	128	50	592	---	464	20	56	384	70	170	18	3,530
2020	North America	24	2	---	---	---	---	---	---	---	---	---	---	26
	Europe	268	26	60	100	---	30	22	74	70	88	34	18	790
	Middle East	1,130	88	184	372	---	296	---	---	370	---	168	---	2,710
	A&P West	36	12	36	26	---	24	---	---	32	---	14	---	160
	A&P Central	350	20	---	100	---	86	---	---	---	---	---	---	556
	A&P East	96	10	---	38	---	30	---	---	32	---	---	---	206
	Total	1,904	158	280	636	---	568	22	74	504	88	216	18	4,410

(note) A&P : Asia and Pacific

Table 4.2.54 Forecast of Annual International Cargo Freighter Movements (Departure and Arrival) (Case 3)

subject to All Directions: Medium Jet

Year	Route	Tashkent	Namangan	Andijan	Fergana	Kokand	Samarkand	Termez	Karshi	Bukhara	Navoi	Urgench	Nukus	Total
2000	North America	8	---	---	---	---	---	---	---	---	---	---	---	8
	Europe	86	10	---	42	---	28	---	---	30	---	---	---	196
	Middle East	456	24	---	128	---	110	---	---	---	---	---	---	720
	A&P West	18	4	---	10	---	8	---	---	---	---	---	---	40
	A&P Central	181	6	---	---	---	---	---	---	---	---	---	---	450
	A&P East	50	2	---	---	---	---	---	---	---	---	---	---	52
	Total	762	48	---	180	---	146	---	---	30	---	---	---	1,456
2005	North America	10	---	---	---	---	---	---	---	---	---	---	---	10
	Europe	120	10	26	42	---	46	---	---	52	---	24	---	320
	Middle East	536	40	---	196	---	162	---	---	152	---	---	---	1,086
	A&P West	31	4	---	18	---	13	---	---	---	---	---	---	76
	A&P Central	220	8	---	---	---	---	---	---	---	---	---	---	228
	A&P East	81	4	---	---	---	---	---	---	---	---	---	---	85
	Total	1,001	66	26	256	---	221	---	---	203	---	24	---	1,802
2010	North America	18	2	---	---	---	---	---	---	---	---	---	---	20
	Europe	166	16	36	56	---	46	---	42	68	---	28	---	458
	Middle East	722	52	---	258	---	220	---	---	204	---	---	---	1,456
	A&P West	31	6	---	18	---	13	---	---	18	---	---	---	90
	A&P Central	296	12	---	---	---	---	---	---	---	---	---	---	308
	A&P East	92	6	---	---	---	18	---	---	---	---	---	---	116
	Total	1,328	91	36	332	---	298	---	42	290	---	28	---	2,448
2015	North America	18	2	---	---	---	---	---	---	---	---	---	---	20
	Europe	296	16	42	66	---	46	18	54	84	---	28	16	576
	Middle East	900	66	---	326	---	270	---	---	250	---	---	---	1,814
	A&P West	44	8	---	26	---	22	---	---	24	---	---	---	124
	A&P Central	372	14	---	---	---	---	---	---	---	---	---	---	386
	A&P East	92	6	---	28	---	24	---	---	---	---	---	---	150
	Total	1,632	112	42	416	---	366	18	54	358	---	28	16	3,072
2020	North America	26	2	---	---	---	---	---	---	---	---	---	---	28
	Europe	259	20	32	84	---	46	22	58	84	72	28	20	740
	Middle East	916	78	---	386	---	332	---	---	304	---	138	---	2,184
	A&P West	44	10	---	28	---	22	---	---	24	---	10	---	138
	A&P Central	378	14	---	---	---	70	---	---	---	---	---	---	456
	A&P East	108	8	---	36	---	30	---	---	---	---	---	---	192
	Total	1,735	136	52	531	---	500	22	58	412	72	176	20	3,738

(note) A&P : Asia and Pacific