

CHAPTER 8

COST AND BENEFIT ANALYSIS OF THE NEW CAPITAL CONSTRUCTION

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8.1 Clarification of cost and benefit for the new capital construction

8.1.1 Economic Definition of the New Capital Construction

As discussed in Section 2.1, the Kazakhstan Government initiated the capital transfer in late 1997 in the midst of economic difficulties following its Independence. Unemployment persisted in Kazakhstan, as the unemployment rate in Kazakhstan was 13% in 1996, 97, and 98. GDP at full employment has not been realized. Under such an economic situation, the Capital construction projects in Astana generated many jobs and added values, reducing unemployment in Kazakhstan. These Capital construction projects, therefore, could be considered to be, in the terminology of economics, *Effective Demand Generation*: GDP increase initiated and substantiated by additional demand created by the government spending.

It is worthwhile to consider the effects of Capital transfer on other areas of RK. If the capital transfer had decreased population or GRDP, for instance, in the former capital, Almaty, the economic growth in Astana would have presumably been offset in Kazakhstan as a whole. In reality, however, the population and added values in Almaty eventually increased in 1999 as shown in the next table. Furthermore, the share of Almaty GRDP in the entire Kazakhstan GDP rose from 14% in 1996 to 18% in 1999. The capital transfer, combined with other favorable economic conditions arising lately, could be thus regarded as increasing the Kazakhstan GDP on the whole.

Increase of population and GRDP in Almaty after the capital transfer to Astana

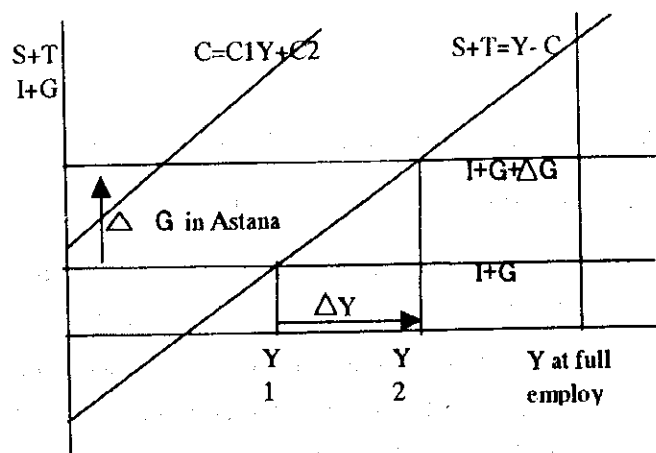
	year	1996	1997	1998	1999
Almaty Population	thou, Jan01	1,061	1,064	1,061	1,129
Almaty GRDP	billion tenge	185	250	251	320
Almaty GRDP/Kazakh. GDP	percent	14%	16%	16%	18%

Source: Data from City Department for Statistics & Analysis, January 2001

8.1.2 Effective Demand Generation

The following graph illustrates the macro-economic interpretation of the effective demand generation initiated by increased public investments for the Astana capital construction.

Kazakhstan GDP increase by the investment to the capital construction in Astana



The total supply Y is, putting aside import and export, is expressed:

$$Y = \text{Consumption (C)} + \text{Saving (S)} + \text{Tax (T)} = C + S + T$$

$$Y = \text{GDP in Kazakhstan}$$

$$C = C_0 + C_1(Y - T) = C_1Y + C_0 - C_1T$$

C_0 means the consumption to sustain the life of the people even with zero income.

C_1 is defined as the marginal propensity to consume (MPC), from 0 to 1, meaning a portion of consumption in the income. In other words

$$\text{The marginal propensity to save (MPS)} = (1 - C_1) \text{ of } (Y - T)$$

$$C = C_1Y + C_0 - C_1T$$

$$= C_1Y + C_2$$

$$C_2 = C_0 - C_1T$$

Assuming that the tax revenue T is constant, i.e. independent of the GDP, C_2 would also be a constant.

On the other hand, the total demand, equivalent to the total supply by definition, is:

$$Y = C + \text{Investment (I)} + \text{Government Expenditure (G)} = C + I + G$$

GDP in Kazakhstan would be at the equilibrium of the total demand and total supply,

$$C + I + G = C + S + T = Y_1$$

$$Y_1 = C_1Y_1 + C_2 + I + G$$

$$Y_1 = (C_2 + I + G) / (1 - C_1)$$

If the government increase its expenditures to stimulate the economic activities,

$$Y_2 = (C_2 + I + G + \Delta G) / (1 - C_1)$$

$$Y_2 - Y_1 = \Delta Y = \Delta G / (1 - C_1)$$

$$\Delta Y / \Delta G = 1 / (1 - C_1)$$

The above $1/(1 - C_1)$ is called the multiplier, indicating the incremental GDP accruing from a unit increase of public or private investments. The same multiplier was used in the forecast of economic and population growth in this Master Plan.

The above explains that additional investment not only increased the total output by the same amount but also a further increase by its multiplier effect through the generation of effective demand. This theory was adopted successfully in macro economic policy in Japan since the rapid economic growth period starting in 1960'.

8.1.3 Clarification of the cost and benefit for the New Capital Construction

The cost of the capital transfer would be an aggregate capital investment and the operation/ maintenance cost of all projects for the capital transfer, disbursed over the 30 years of its implementation. With the accumulation of facilities and assets as the result of investment, the necessary operation and maintenance cost would increase every year.

The major benefit would accrue from the increase of GDP by effective demand generation. This benefit could be measured by the increase in added value (Gross Regional Domestic Product: GRDP) in Astana that are projected to take place as the results of the investments as compared with a hypothetical case of "without project" case.

Other benefits would include unification of many ethnic groups, or increase of national dignity. These benefits, however, are difficult to measure.

The economic analysis looks into the relation between the necessary inputs for production in the society and their outputs retained for reproduction. The inputs in this context are the capital investment and operation/ maintenance cost. The outputs further are essentially benefits or earnings from these inputs. If the outputs exceed the inputs in value, the net earning (net benefits) would accrue. These net benefits would be reserved for re-investment and re-production. Thus the wealth in the society would accumulate.

GDP or GRDP are sum of added values or gross earnings in a country or region produced as the consequence of inputs of this investment and operation. The entire GDP or GRDP, however, does not represent the outputs to be re-invested, or sources of re-production in the future, because a large portion of GDP would have to be consumed. Only savings and taxes are the sources of public and private investment in the future.

Costs and Benefits of the New Capital Development

Cost		Benefit			
Definition	How to measure	Definition	in EIRR calculation	How to measure	Difficulty to measure benefits
Investment and operation of all projects	monitory units, \$ or Tenge	Increase of GRDP in Astana as increase of Kazakhstan GDP	Increase of (GRDP- consumption)	monitory units, \$ or Tenge	unification of many ethnic groups, increase of national dignity

The share of the consumption is assumed to account for 60% of GRDP, and therefore, the gross earnings minus consumption would account for 40% of GRDP. Thus the benefit would follow:

$$\text{benefit} = \text{GRDP} - \text{consumption}$$

$$\text{cost} = \text{investment} + \text{operation}$$

$$\text{net benefit} = (\text{GRDP} - \text{consumption}) - (\text{investment} + \text{operation})$$

On the other hand, in terms of distribution, GRDP can be composed of the following components:

Income of employees

Operating surplus

Consumption of fixed capital (depreciation)

Indirect taxes

Income of employees, the staple element of GRDP in terms of distribution, denotes the part of GRDP that goes to the employees for their consumption and savings, while the *indirect taxes* would become sources of government expenditure. Those *operating surplus* and *consumption of fixed capital* would be reserved by companies and used for their future investments.

Clarification of benefit to meet the cost

sources	Consumption		Saving		Tax
expenditure	Consumption		Investment		Govt. expen.
distribution	Incomes of employees	Savings from the incomes	Operating surplus	Consum. of fixed	Indirect taxes
			40%		

8.2 Estimation of the cost and benefit in the New Capital Construction

8.2.1 Estimation of Investment Cost

(1) Investment Cost

As mentioned in the previous chapter, the Astana capital construction from the year 2001 to 2030 would require an investment of nearly US\$ 9,000 million¹ in this Master Plan, as discussed in Section 7.5

(2) Characteristics of Investment Cost

The cost consists of direct construction cost and engineering services, excluding VAT, land acquisition and compensation cost, administration expenses and contingency. The cost was estimated based on the Master Plan with the following components;

- 1) Urban development and architectures: commercial buildings, offices, residential building, land preparation with demolition, internal infrastructures, parks and greenery
- 2) Infrastructures: transportation, water resources, water supply, sewerage, power/ heat supply, gasification, telecommunication and solid waste
- 3) Engineering protection: stormwater drainage, flood mitigation,

These component projects could be categorized into the following three categories; *profit-seeking*, *less profit seeking* and *non-profit seeking* works.

The *profit seeking* works would include commercial building, offices and residential apartments such as supermarkets, bank offices, condominiums, excluding government offices. These profit seeking projects could in general be financed by foreign or domestic investments or commercial banks if these investors could ascertain that adequate levels of robust profits would be generated in return for bearing the risks of putting their fund in the projects rather than elsewhere.

The *less profit seeking* works include infrastructures such as water supply, sewerage, power/ heat supply, gas supply, telecommunication, bus and railway. Roads or bridges without toll would be categorized as *non-profit seeking*. These *less profit seeking* projects would mainly be financed by government budgets. Nonetheless, private investors can also be involved in

¹The cost and benefit would be calculated in US\$. The conversion rates are: US\$ 1 = Tenge 144= Japanese Yen 108.

these finances, and in such case the public expenditures will be reduced. Deregulation in relation to public service such as tariffs would enhance the opportunity for private investments.

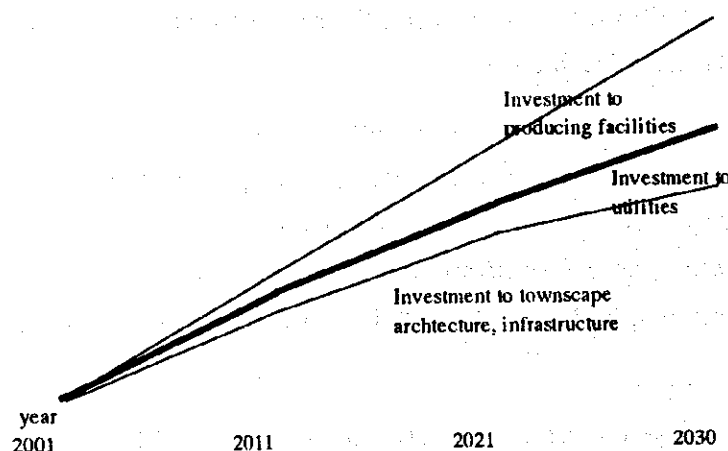
On the other hand, *non-profit seeking* works consists mainly of public works such as government offices, roads, bridges, parks, greenery, land preparation, water resources and flood mitigation. These projects will ordinarily be financed by the government budgets, since they do not by definition generate any profits. These works, however, are essential not only to construct a new capital, but also to enhance amenity for the residents' pleasure and comfort. These facilities are indispensable in the sense that they attract workers and private investment.

In other words, economic activities such as services and manufacturing will be enhanced by well prepared urban environment with good infrastructures, such as roads, parks and utilities. In the entirety of the urban environment, the *non-profit seeking* infrastructures are a consolidated part, supporting the economic activities.

The investment of these three categorized works in combination creates the basic structure of the new capital on which various economic activities will take place, and lead to the projected increase of Astana GRDP. The added values thus generated would be distributed to workers to increase their income.

In addition, private investments to production, such as industries or trades, would bring about more added values and accrue income to the people. Moreover, these producing facilities would sustain the economic development in Astana even without the government investments.

Importance of investment to producing facilities



8.2.2 Maintenance and Operation Cost

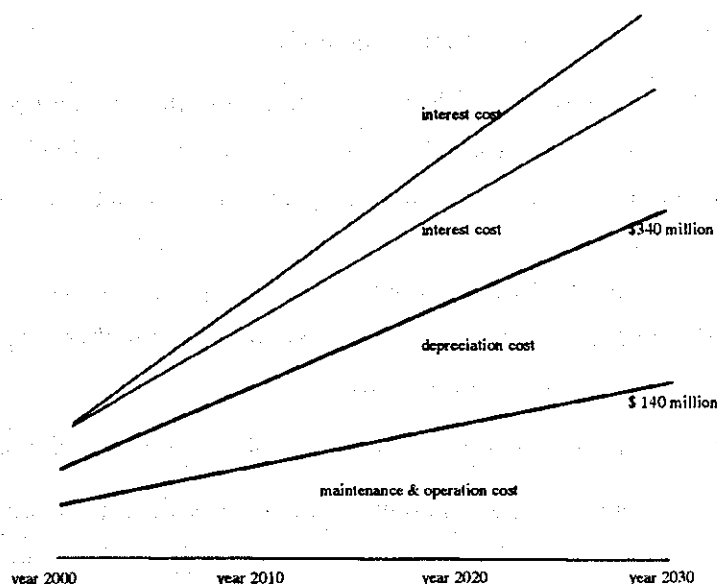
The maintenance and operation cost tends to increase with accumulation of assets. For the total assets of townscape, architectures and infrastructures to be constructed for Astana, the maintenance and operation is estimated to require US\$45 million in the year 2010, US\$91 million in 2020 and US\$136 million in 2030. The annual maintenance/ operation cost in 2030 will be 60% of the annual investment, US\$225 million.

In addition, annual expenditure would be required to cover not only the annual maintenance/ operation cost but also depreciation and interest cost. Assuming that assets of architectures and infrastructures have the life of 50 and 30 years, respectively, annual depreciation cost would be US\$200 million in the year 2030.

$$\begin{aligned} \text{Annual depreciation cost: } & (3,750 + 1850)/50 \text{ years} + (1590 + 950)/30 \text{ years} \\ & = \text{US\$200 million} \end{aligned}$$

The annual interest cost might be larger than the depreciation, depending on the funding sources, such as government budgets or commercial loans.

Accruing of maintenance, depreciation and interest costs due to accumulation of assets



8.2.3 Estimation of Benefit: Increase of GRDP

With the cost of these investment and operation/ maintenance, the benefit would accrue from the resulting growth of added values in Astana. The GRDP increase up to the year 2030 is forecast in the chapter of "Population and Economic Planning Frameworks".

8.3 Approach for Evaluation

There are two types of evaluation widely practiced to analyze the viability of investments; financial and economic analyses.

8.3.1 Financial Analysis

The financial analysis normally depicts the balance of necessary investments and expected revenues. This approach will be applied mainly to individual *profit seeking* or *less profit seeking* projects to clarify for example the viability and repayability of a loan. Its major objectives are:

- 1) To verify that adequate levels of profits will be generated as a source for repayment to investors or lenders
- 2) To develop thereby a sound business plan where not only expenditures of investment but also operation and maintenance cost will be covered.
- 3) To ensure that financial resources will be available as needed to meet the obligations for repayment.

8.3.2 Economic Analysis

(1) Basic concept of economic analysis

The economic analysis attempts to assess the cost and benefit of a project in achieving the national economic objective. A basic presumption of the economic analysis is that resources in a society are finite, therefore, the usage of the resources should carefully be optimized from the view point of contribution to the economic welfare of the country. In the context of the Master Plan, the economic analysis depicts whether usage of input resources (cost) could accrue more benefit.

(2) Difference between the economic analysis and financial one

The economic analysis thus evaluates a project in the context of the national economy rather than commercial profitability of the project entity, which is more applicable to an undertaking such as the development of the new capital with clear national relevance. The financial analysis would not be an appropriate approach for this total evaluation, since the investments of the new capital construction include many *non profit seeking* projects.

(3) Indicator of economic efficiency

The economic analysis differs from the financial analysis both in terms of identification and evaluation of cost and benefit. One of the major

indicators of the economic analysis is *Economic Internal Rate of Return* (EIRR). EIRR depicts the discount rate which would balance the cost and benefit accruing from a project and thereby assesses the economic efficiency of the project

A project with larger EIRR would create more added values, compared to other projects in the same sector. In a sector such as agriculture, industry or trade, Asian Development Bank (ADB), for instance, states that 10-12 percent has been accepted as the EIRR cut-off point; a project with EIRR of less than 10 percent may be supported only if there is strong socioeconomic justification for it, which should be fully described. This shows a benchmark of an interpretation of EIRR.

(4) Aggregate Economic Analysis Approach

The development of new capital is naturally composed of various sub-projects in various sectors. The sub-projects are closely interwoven, but none is dispensable in the overall realization of the new capital. The economic analysis ordinarily identifies and quantifies the specific type of benefit from a sub-project. This type of methodology is practically inapplicable to a large-scale, long-term and multi-faceted development.

In this Master Plan, an aggregate economic analysis approach was adopted. Principles and issues of this economic analysis are as given below:

- 1) Due to the holistic nature of the capital development, no attempts are made to assess individual sub-projects.
- 2) The economic analysis was thus conducted as the capital development as an inseparable aggregate of sub-projects closely interwoven.
- 3) EIRR does not pertain to any specific type of beneficiary. Considerations, therefore, shall be required to evaluate the social aspect, such as the effects of the proposed development on citizens below the poverty line.

8.3.3 EIRR Calculation

The economic viability of the development of the new capital as a whole, comprising the various sub-projects formulated in this Master Plan, was evaluated based on the foregoing. This analysis compared the situation that would prevail with the capital transfer ("with" case) and the situation without the transfer

("without" case). The overall EIRR was estimated to be 11.4%. The cash flow for this estimation is presented in Table 8.3.1.

(1) Assumption

- the "with" case is as shown in the "Forecast of economic and population growth":

Expected annual growth of GRDP from the year 2001 to 2030: 8.3%

Expected annual growth of GRDP per capita from the year 2001 to 2030: 5.1%

Expected population in the year 2030: 800,000

- in the "without" case, GRDP in Astana would increase from 1997 to 2030 with an annual growth rate of 4.4%, the same as the national growth rate from 2001 to 2005, as adopted in the National Indicative Plan. Necessary investments to realize this growth was estimated by using the same multiplier as the national one, 1.06. The population in Astana in 1997 would stay constant up to the year 2030.
- The economic cost is based on direct construction cost and engineering services, excluding VAT, land acquisition, compensation, administration, contingency and replacement cost. It is assumed that border and domestic distortions do not exist.
- The operation/ maintenance cost in each year is estimated by the balance of the accumulated assets.
- The share of consumption is 60% of GRDP, the benefit is 40% of the GRDP.

(2) Calculation

- the cost increase is equal to the sum of investment plus operation cost increment between the "with" case and "without" case. The benefit increase is calculated in the same manner.
- The net benefit is estimated by the benefit increase minus the cost increase.

(3) Results

The overall EIRR was estimated to be 11.4% as shown in the attached table. Using the cut-off point, 10-12 percent by ADB, the capital transfer is considered to be economically viable. Implications of this result of the economic analysis need to be carefully elaborated. Unlike the rather

widespread speculation that large scale public undertakings such as the transfer of a nation's capital leads to wastage of resources, the economic analysis above clearly indicates the economic justification thereof.

As the economic analysis looks at the capital transfer as an aggregate of mutually inseparable projects, assessment of individual components needs to be carried out.

In order to check the robustness of economic analysis, the following three alternative scenarios were analyzed, in comparison with the base case described above.

Sensitivity of Economic Analysis

No.	Description	Population in 2030	Economic Growth	EIRR (%)
Case 1	Base Case	800,000	8.3 %/year	11.4
Case 2	Low population growth	650,000	8.3 %/year	11.1
Case 3A	Heavy investment in early years	800,000	8.4 %/year	11.4
Case 3B	Heavy investment in later years	800,000	8.3 %/year	11.5

The economic viability of the new capital development would remain unaffected in essence, even with adoption of the low population growth scenario or change in the disbursement pattern of investment. Table 8.3.2 shows the EIRR value of 11.1 % in case of the economic development scenario with the projected population of 650 thousand in the year 2030 (Case 2). Table 8.3.3 presents the EIRR value of 11.4 % in case that the investment in the first 5 year term from 2001 to 2005 is twice as much as that in the second 5 year term from 2006 to 2010 (Case 3A) while in the opposite case, where the second term investment is twice the first term (Case 3B), the EIRR would be 11.5 % as shown in the Table 8.3.4.

8.4 Finance to the investments in the Master Plan

8.4.1 An Image of Finance for Investment

Finance for investments is a crucial issue for the facilitation of the Master Plan. With the magnitude of the necessary financing and diverse and complex nature of the available source, a clear strategy needs to be established. In this chapter, issues related to the needs and sources of finance will be discussed.

According to the “Blooming of Astana, blooming of Kazakhstan” in 2000, Astana Municipality is described to expand investment sources in the following manner:

- 1) Stock capital attraction, corporation shares issue
- 2) Local loan securities by local executive body to finance regional investment projects
- 3) Stimulation of foreign direct investment, introduction of loan and credits of international organizations and financial institutions and foreign states to develop city industrial and social sectors.

According to Astana Indicative Plan from the year 2001 to 2005, on the other hand (hereinafter called Indicative Plan), the sum of central government budget and Astana municipality budget is Tenge 22 billion per year, which is equivalent to approximately US\$ 152 million. If the governments could continue to finance this annual budget for 30 years, the government budget would account for 50% of the total finance.

$$US\$152 \text{ million/ year} \times 30 \text{ years} = US\$4,560 \text{ million}$$

$$US\$4,560 \text{ million/ } US\$9,000 \text{ million} = 50\%$$

This government budget in general would be the staple source of financing *non-profit* and the major part of *less profit seeking* works, such as parks, greenery, roads, bridges, water resources, flood mitigation, power/ heat supply and solid waste.

Thirty-year-investment plan and its finance: use of fund and source of fund

unit: million US\$

Use of Fund			Source of Fund	
non profit seeking works	Land preparation	700	4,560 Government (152x30 years) investment	Government budget
	Parks, greenery			
	Water resources, flood miti.	160		
	Transportation	950		
	Water supply, sewerage power/heat supply, gas. telecommuni. solid waste	1,590		
	Residential building	3,750	2,970 Private companies (108x30years) or fund of organization	
	Office	1,850		
Profit seeking works	Commercial buildings		1,470 (49x30years) Foreign investment	Private investment
total		\$9,000 million	\$9,000 million	

On the other hand, *profit seeking* projects will mostly be financed by foreign direct investments (FDI) and commercial bank loans. Mortgage financing may become a useful finance option for residential buildings. According to the Indicative Plan, annual FDI investments would be Tenge 7 billion, equivalent to US\$49 million. If these investors could continue to finance this annual budget for 30 years, these funds would account for 16% of the total finance.

$$US\$49 \text{ million/ year} \times 30 \text{ years} = US\$1,470 \text{ million}$$

$$US\$1,470 \text{ million/ } US\$9,000 = 16\%$$

The remaining 34% of necessary funds might come from other private companies or funds of organizations.

8.4.2 Affordability from Macro Viewpoint

The effects of investments will accrue on household economy in terms of increased burden of housing or utility payments. Since the public works conducted under government funding shall be financed basically by taxes, the

effects of housing and utility payments shall be checked in the composition of disposable income.

(1) Expenditure structure of a household in Astana

It is difficult to estimate the portion of house rent expense in household income. Because its expenditure is not specified in the statistics and it would be usually paid together with utility cost, such as water, power, heat supply. However, the maximum house rent portion is roughly estimated to be 38%, considering an example shown by the Department of Labor, Employment and Social Security of Population, Astana City Akimat.

Average income: Tenge 19,000/ worker, month

House rents and utility payment: 8,000- 9,000 tenge/ household

$$9000 / 19,000 = 47\%$$

Utility payment: 9.5% as will be mentioned later

$$\text{House rents: } 47\% - 9.5\% = 38\%$$

(2) Housing Payments

According to the Master Plan, nearly 60% of new comers would live in the apartment building of "medium" density area. The investment to apartments for this category is assumed to be US\$5,400 per capita up to 2010, assuming the construction cost of US\$300 per m² with the average area of 18 m² per capita.

$$US\$300/m^2 \times 18 m^2 = US\$5,400/ capita$$

The equivalent annual cost for this investment cost would be US\$502, because:

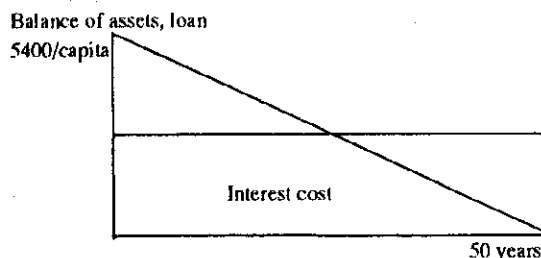
$$\text{Investment (depreciation) cost: } US\$5400 / 50 \text{ years} = US\$108$$

$$\text{Operation/ maintenance cost: } US\$5400 \times 0.8\% = US\$43$$

$$\text{Interest cost: } US\$5400 \times 1/2 \times 13\% = US\$351$$

The total annual cost of US\$502 is assumed to represent the corresponding level of housing payments.

Average of interest cost: investment amount/2 x a interest rate



According to the population and economic development analysis presented in Chapter 2 of the Progress (2) Report, the expected GRDP per capita in 2010 will be Tenge 420,000, which is equivalent to US\$2,917. Assuming the personal disposable income (PDI) is 70% of the added value based on the data provided by the City Development of Statistics, the housing payments are estimated to account for 25% of its income in year 2010 for housing.

$$US\$502 / (US\$2917 \times 70\%) = 25\%$$

This burden is not entirely affordable for some people with relatively tight household budget. The share of housing payments shall decrease to 21% of their income in the next 10-year period up to 2020, and further to 20% in the subsequent 10-year period up to 2030, as shown in the next table. The reduction comes mainly from the income increase of the inhabitants in Astana, although the incremental income will be somewhat compensated due to increase in the size of housing units. Thus, the burden to pay house rents is estimated to decrease with the development of Astana and the people could live in the larger space for a smaller share of household budget.

Decrease of the burden to pay apartment rent, with the development of Astana

	calculation	unit	investment in year 2001- 2010	investment in year 2011- 2020	investment in year 2021- 2030
A	construction cost/m ²	us\$	300	300	300
B	m ² /capita	us\$	18	22	25
C	construction cost/capita	us\$	5,400	6,600	7,500
D	annual operation/maintenance	us\$	43	53	60
E	depreciation cost	us\$	108	132	150
F	interest cost	us\$	351	429	488
G	sum(D-F) total annual cost	us\$	502	614	698
H	apartment rent	us\$	502	614	698
I	expected GRDP/ capita	us\$	2,917	4,111	4,951
J	1 x 70% expected personal disposable income (PDI)/ capita	us\$	2,042	2,878	3,466
K	H / J apartment rent/PDI	percent	25%	21%	20%

(3) Utility Payments

Utility payments in this section refers to the expenses for the bills of utilities related to the basic human needs such as water, sewerage, power and heat, plus somewhat dispensable but clearly important services such as gas, telecommunication and solid waste. According to the "Social-economic status of Astana City", the average expenditure for the utility payment was 9.5% of a household income in November, 1999.

The total investment cost from the year 2001 to 2010 for the planned facilities in this category would be US\$676 million. Assuming that the average life of these facilities is 30 years, the annual total cost in the year 2010 would be US\$78 million.

$$\text{operation/ maintenance US\$11 million} + \text{US\$676 million} / 30 \text{ years} + \text{US\$676 million} \times 1/2 \times 13\% = \text{US\$ 78 million}$$

Thus the annual cost per capita in the year 2010 would be US\$158.

$$\text{US\$78million} / 490,000 \text{ people} = \text{US\$158}$$

Utility payments are thus estimated to account for 8% of their income in the year 2010, as shown in the next table. Similarly, utility payments will be 7% in the year 2020 and 2030.

Affordability of utility payments for the people with incomes at average level: 7-8% of incomes

Calculation	Utilities	unit	investment in year 2001-2010	investment in year 2001-2020	investment in year 2001-2030
A	water supply	million us\$	130	262	321
B	sewerage	million us\$	88	182	240
C	power/ heat supply	million us\$	253	444	650
D	gasification	million us\$	108	127	136
E	telecommunication	million us\$	77	135	177
F	solid waste	million us\$	21	43	62
G	sum(A-F) investment total	million us\$	676	1,193	1,586
H	operation and maintenance cost	million us\$	11	26	39
I	G/30 years depreciation cost	million us\$	23	40	53
J	13%xG/2 interest cost	million us\$	44	78	103
K	sum(H-J) total annual cost	million us\$	78	144	195
L	expected population	thousand	490	690	800
M	Kx1000/L total annual cost/ capita	us\$	158	208	244
N	expected GRDP/ capita	us\$	2,917	4,111	4,951
O	N x 70% expected personal disposable income (PDI)/ capita	us\$	2,042	2,878	3,466
P	M/O total annual cost/ PDI, per capita	percent	8%	7%	7%
Q	apartment rent (medium)	/PDI, per capita	25%	21%	20%
R	P+Q Apartment rents + utility	/PDI, per capita	33%	28%	27%

In summary of the foregoing, the share of housing and utility payments in income is estimated to decrease to 33%, 28% and 27% in the year 2010, 2020 and 2030.

8.4.3 Affordability from Micro Viewpoint

There are a substantial number of people below the poverty line in Astana.² The Plan provides a separate type of residential buildings with lower costs chiefly for those who have limited means for living. The following table depicts the analysis of household of a hypothetical person below the poverty line. Share of housing payments in his income, is estimated to be 31- 38%.

The total expenditure for housing and utilities is estimated to account for 48- 56% of income. It is difficult for some below the poverty line to pay these costs. It could be deduced from this analysis that there is a strong necessity to continue to enhance a social structure geared to help those who have limited means for living in Astana, even with the realization of the planned economic development.

Difficulty for the people with lower incomes to afford apartment rents and utilities

calculation		unit	investment in year 2001- 2010	investment in year 2011- 2020	investment in year 2021- 2030
A	construction cost/m2	us\$	200	200	200
B	m2/capita	us\$	18	22	25
C	construction cost/capita	us\$	3,600	4,400	5,000
D	annual operation/maintenance	us\$	29	35	40
E	depreciation cost	us\$	72	88	100
F	interest cost	us\$	234	286	325
G	sum(D-F) total annual cost	us\$	335	409	465
H	apartment rent	us\$	335	409	465
annual income/ capita in 2000, tenge 4000/month					
	expected income/ capita at the same growth rate of GRDP/capita	us\$	875	1,233	1,485
	apartment rent/ income	percent	38%	33%	31%
	total annual cost of utilities	us\$	158	208	244
	utility cost/ income		18%	17%	16%
	(Apartment rent + utility)/ income	percent	56%	50%	48%

² "Social Economic Status of Astana City, Statistics of Department of Astana City, 2000" mentions that monthly minimum living cost is Tenge 4,103 per capita. According to Data of the City Development of Statistics, 18% of the inhabitants examined in the survey in December, 2000 have monthly incomes of less than Tenge 4,000.

The above indicates that additional considerations need to be made to sustain those who are with limited means for living, as the housing and utility payments would be high. Subsidized housing programs, for example, could be considered in this regard.

8.5 Summary and Proposal

The capital transfer is one of the major government undertakings aimed at consolidating and strengthening the newly independent nation of RK. This transfer has apparently created a number of jobs and thereby reduced unemployment with an effect of the *Effective Demand Generation*. The JICA Master Plan presented in full in this report shows the 30-year strategies, schemes, and projects of this capital construction, in the fields of urban development, infrastructure development and engineering protection. It is important, therefore, to verify the proposed Master Plan from the viewpoints of:

- Economic viability
- Affordability of the investments
- Robustness of funding for the necessary investments

(1) Economic Viability

First, judging from the EIRR value of 11% for the capital construction projects as a whole, the capital transfer is considered to be economically viable. However, due to the aggregate nature of this EIRR estimation, individual sub-projects shall be carefully assessed before their implementation.

In essence, EIRR does not relate to its benefit distribution to whom, the rich or the poor. This is the reason why administration measures might be necessary to reduce the income differences among citizen, such as adjustment of taxation and/or preparation of social safety networks, or provision of employment opportunity particularly for those with limited means of living.

(2) Affordability

Secondly, the growth of incomes will increase affordability for the profit-seeking or less profit-seeking works, such as commercial offices, housing and utility infrastructures. The household burden to pay house rents and utilities would decrease relatively with the development of Astana. Thus, the people could live in a larger space and enjoy better supply of utilities in the future.

Those with limited household budgets, however, might not be able to afford these services. The administration measure to increase the lowest individual income levels will be necessary. Some mechanism for mitigation of the

impacts of increased house and utility payments need to be initiated, which may include subsidized public housing provision and/or tariff system with differentiation in favor of small amount users.

(3) Financing of Non and Less Profit Seeking Works

Thirdly, the non-profit seeking works or some of the less-profit seeking projects will have to be financed chiefly by government budgets, while the *profit-seeking* works could be financed by private investments or FDI.

With an increase in the state budget in the future, the burden of budget allocation to Astana will be reduced. If international soft loans and private investments will be involved in the public works, government expenditures could further be reduced. Deregulation in public service tariffs and operations will promote and stimulate the private investments.

Along with this deregulation, management of public sectors must be improved. Reduction of water or power leakage and loss, as mentioned before, needs to be detected and reduced. Also, tariff collection rates should be raised to strengthen the financial condition of public utilities and enhance social justice.

(4) Investment Promotion

Lastly, it must be emphasized that private investments to producing facilities, such as in industries or trades, would sustain the economic development in Astana even under reduced government investment. Promotion and support to expand and develop the private sectors shall be essential to continual development of Astana.

TABLE

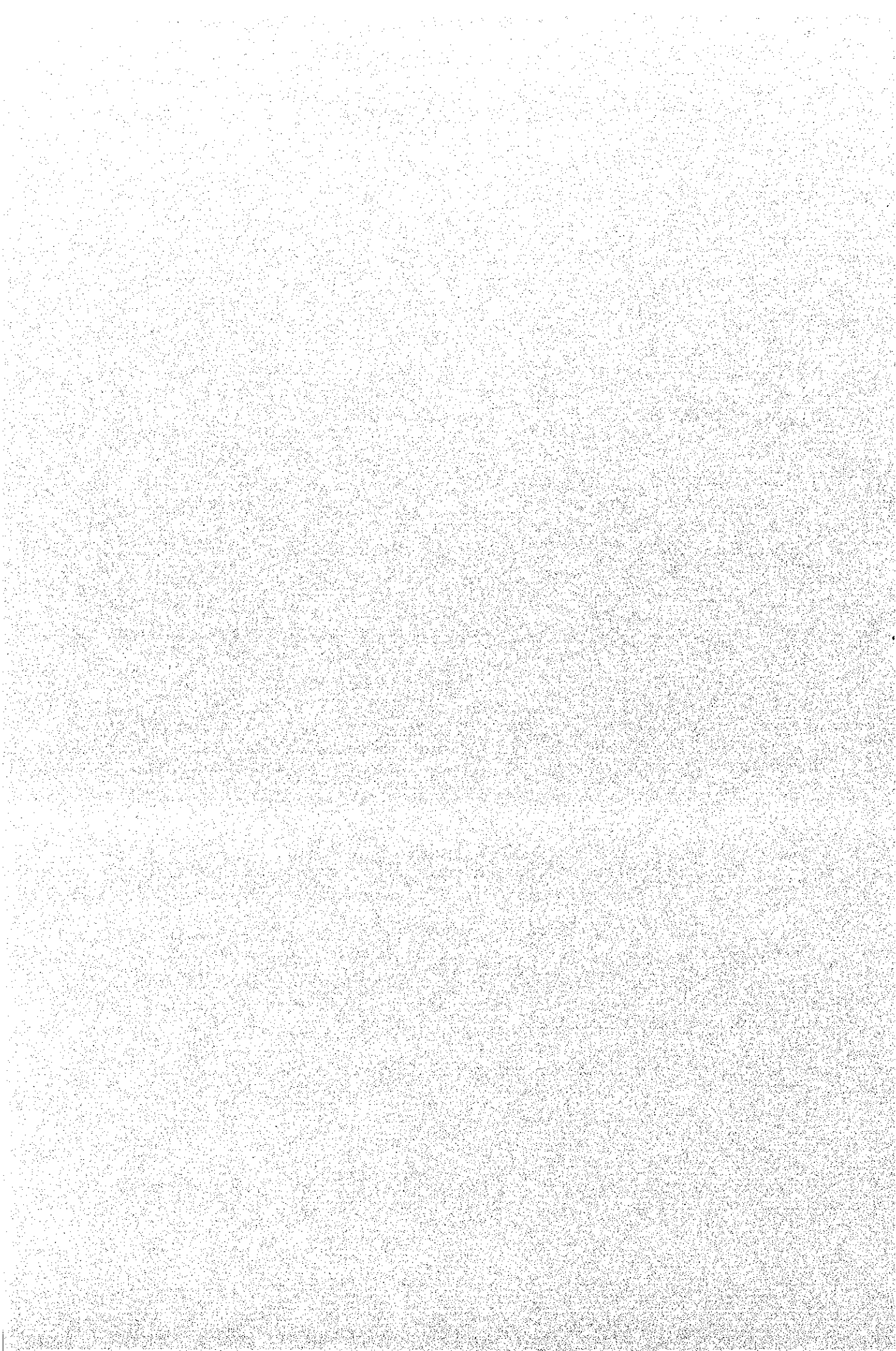


Table 8.3.1 EIRR Calculation - Case 1 Base Case: Medium Population Growth Scenario

Unit: Million US\$	Cost							Benefit				Net benefit
	Investment		Operation				Total cost increase	GRDP	GRDP	GRDP increase	GRDP increase - consumption	Benefit - cost
	with the new capital construc- tion	without necessa- ry investm- ents for 4.4% annual growth	with balance of assets	cost	without balance of assets	cost	Investmen- t + operation	with investm- ent of new capital construc- tion	without annual growth of 4.4% from 1997- 2030	with - without	GRDP x 0.4	Benefit increase- cost increase
1995		49							167			
1996		35							132			
1997	174	30	174	2	30	0	145	208	138	71	28	-117
1998	299	30	472	7	61	1	274	361	144	217	87	-187
1999	278	30	750	11	91	1	257	368	150	218	87	-169
2000	271	30	1,021	14	122	2	253	361	157	204	82	-171
2001	368	36	1,389	17	157	2	348	427	164	263	105	-242
2002	368	36	1,757	20	193	3	350	505	171	334	133	-217
2003	368	36	2,125	23	228	3	353	596	178	418	167	-185
2004	368	36	2,492	26	264	4	355	705	186	519	208	-148
2005	368	36	2,860	30	300	4	358	833	194	639	256	-102
2006	368	44	3,228	33	344	5	352	928	203	725	290	-61
2007	368	44	3,596	36	388	5	354	1,034	212	823	329	-25
2008	368	44	3,964	39	432	6	356	1,152	221	931	373	16
2009	368	44	4,332	42	476	7	359	1,284	231	1,053	421	62
2010	368	44	4,700	45	520	7	361	1,431	241	1,189	476	114
2011	305	55	5,005	49	574	8	292	1,542	252	1,291	516	224
2012	305	55	5,310	54	629	9	296	1,663	263	1,400	560	264
2013	305	55	5,615	59	684	10	300	1,792	274	1,518	607	308
2014	305	55	5,920	63	738	10	304	1,932	286	1,646	658	355
2015	305	55	6,226	68	793	11	307	2,083	299	1,784	714	406
2016	305	68	6,531	73	861	12	298	2,217	312	1,904	762	464
2017	305	68	6,836	77	929	13	302	2,358	326	2,032	813	511
2018	305	68	7,141	82	996	14	305	2,509	340	2,169	868	562
2019	305	68	7,446	87	1,064	15	309	2,670	355	2,314	926	617
2020	305	68	7,752	91	1,132	16	313	2,840	371	2,469	988	675
2021	225	84	7,977	96	1,216	17	220	2,944	387	2,556	1,023	803
2022	225	84	8,202	100	1,300	18	223	3,051	404	2,646	1,059	836
2023	225	84	8,427	105	1,384	19	226	3,162	422	2,740	1,096	870
2024	225	84	8,652	109	1,468	21	229	3,277	441	2,836	1,134	905
2025	225	84	8,877	113	1,552	22	233	3,396	460	2,936	1,174	942
2026	225	104	9,102	118	1,656	23	215	3,503	480	3,023	1,209	994
2027	225	104	9,327	122	1,761	25	218	3,613	501	3,112	1,245	1,026
2028	225	104	9,552	127	1,865	26	221	3,727	523	3,203	1,281	1,060
2029	225	104	9,777	131	1,969	28	224	3,844	546	3,298	1,319	1,095
2030	225	104	10,002	136	2,073	29	227	3,965	570	3,395	1,358	1,131
Total	10,002	2,073	10,002	2,205	2,073	396	9,737	66,282	10,404	55,878	22,351	12,614

Year 2001-2030

Year 1997- 2030

34 years

EIRR

11.4%

mil \$ 8,981

bil. Teng 1,293

Table 8.3.2 EIRR Calculation - Case 2: Low Population Growth Scenario

Unit: Million US\$	Cost							Benefit				Net benefit	
	Investment		Operation				Total cost increase	GRDP	GRDP	GRDP increase	GRDP increase - consumption	Benefit - cost	
	with the new capital construc- tion: 7.2 % annual growth	without necessa- ry invest- ments for 4.4% annual growth	with balance of assets cost	without balance of assets cost	Investment + operation			with investm- ent of new capital construc- tion: 7.2% annual	without annual growth of 4.4% from 1997- 2030	with - without	GRDP x 0.4	Benefit increase- cost increase	
1995		49							167				
1996		35							132				
1997	174	30	174	2	30	0	145	208	138	71	28	-117	
1998	299	30	472	7	61	1	274	361	144	217	87	-187	
1999	278	30	750	11	91	1	257	368	150	218	87	-169	
2000	271	30	1,021	14	122	2	253	361	157	204	82	-171	
2001	299	36	1,319	16	157	2	277	419	164	256	102	-174	
2002	299	36	1,618	19	193	3	280	487	171	316	127	-153	
2003	299	36	1,917	23	228	3	283	566	178	388	155	-128	
2004	299	36	2,215	27	264	4	286	658	186	471	189	-97	
2005	299	36	2,514	30	300	4	289	764	194	569	228	-61	
2006	299	44	2,813	34	344	5	283	845	203	642	257	-27	
2007	299	44	3,111	37	388	5	286	934	212	722	289	3	
2008	299	44	3,410	41	432	6	289	1,033	221	812	325	35	
2009	299	44	3,708	45	476	7	292	1,143	231	912	365	72	
2010	299	44	4,007	48	520	7	295	1,264	241	1,023	409	114	
2011	250	55	4,257	51	574	8	238	1,351	252	1,099	440	201	
2012	250	55	4,507	54	629	9	241	1,444	263	1,181	473	232	
2013	250	55	4,757	57	684	10	243	1,544	274	1,269	508	265	
2014	250	55	5,007	60	738	10	245	1,650	286	1,364	545	300	
2015	250	55	5,257	63	793	11	247	1,764	299	1,465	586	339	
2016	250	68	5,507	66	861	12	236	1,851	312	1,539	615	379	
2017	250	68	5,757	69	929	13	238	1,942	326	1,616	646	408	
2018	250	68	6,007	72	996	14	240	2,037	340	1,697	679	439	
2019	250	68	6,257	75	1,064	15	242	2,138	355	1,783	713	471	
2020	250	68	6,507	78	1,132	16	244	2,243	371	1,872	749	504	
2021	181	84	6,688	80	1,216	17	160	2,306	387	1,919	768	608	
2022	181	84	6,868	82	1,300	18	161	2,371	404	1,967	787	626	
2023	181	84	7,049	85	1,384	19	162	2,437	422	2,015	806	644	
2024	181	84	7,229	87	1,468	21	163	2,506	441	2,065	826	663	
2025	181	84	7,410	89	1,552	22	164	2,576	460	2,116	847	683	
2026	181	104	7,590	91	1,656	23	144	2,636	480	2,156	862	718	
2027	181	104	7,771	93	1,761	25	145	2,697	501	2,196	878	733	
2028	181	104	7,951	95	1,865	26	146	2,760	523	2,236	894	749	
2029	181	104	8,132	98	1,969	28	146	2,823	546	2,277	911	765	
2030	181	104	8,313	100	2,073	29	147	2,889	570	2,318	927	780	
Total	8,313	2,073	8,313	1,899	2,073	396	7,743	53,378	10,404	42,974	17,189	9,447	

Year 2001-2030

Year 1997- 2030

34 years

EIRR

11.1%

mil.\$ 7,292

bil.tenge 1,050

Table 8.3.3 EIRR Calculation - Case 3A : Heavy Investment in Early Years

Unit: Million US\$	Cost							Benefit				Net benefit Benefit - cost
	Investment		Operation				Total cost increase	GRDP	GRDP	GRDP increase	GRDP increase - consumption	
	with the new capital construc- tion in a rapid investm- ent case	without necessa- ry invest- ments for 4.4% annual growth	with balance of assets	without cost	with balance of assets	without cost		with investm- ent of new capital construc- tion in a rapid investm	without annual growth of 4.4% from 1997- 2030	with - without	GRDP x 0.4	
1995		49							167			
1996		35							132			
1997	174	30	174	2	30	0	145	208	138	71	28	-117
1998	299	30	472	7	61	1	274	361	144	217	87	-187
1999	278	30	750	11	91	1	257	368	150	218	87	-169
2000	271	30	1,021	14	122	2	253	361	157	204	82	-171
2001	490	36	1,511	14	157	2	467	440	164	276	110	-357
2002	490	36	2,002	19	193	3	471	535	171	364	146	-326
2003	490	36	2,492	24	228	3	475	651	178	473	189	-286
2004	490	36	2,982	28	264	4	480	793	186	607	243	-237
2005	490	36	3,473	33	300	4	484	965	194	771	308	-175
2006	245	44	3,718	35	344	5	232	1,047	203	844	338	106
2007	245	44	3,964	38	388	5	234	1,136	212	924	370	136
2008	245	44	4,209	40	432	6	235	1,233	221	1,012	405	169
2009	245	44	4,454	42	476	7	237	1,338	231	1,107	443	206
2010	245	44	4,700	45	520	7	239	1,451	241	1,210	484	245
2011	305	55	5,005	49	574	8	292	1,565	252	1,314	525	234
2012	305	55	5,310	54	629	9	296	1,688	263	1,425	570	274
2013	305	55	5,615	59	684	10	300	1,821	274	1,547	619	319
2014	305	55	5,920	63	738	10	304	1,964	286	1,677	671	367
2015	305	55	6,226	68	793	11	307	2,118	299	1,819	728	420
2016	305	68	6,531	73	861	12	298	2,252	312	1,939	776	478
2017	305	68	6,836	77	929	13	302	2,393	326	2,067	827	525
2018	305	68	7,141	82	996	14	305	2,544	340	2,204	882	576
2019	305	68	7,446	87	1,064	15	309	2,705	355	2,349	940	631
2020	305	68	7,752	91	1,132	16	313	2,875	371	2,504	1,002	689
2021	225	84	7,977	96	1,216	17	220	2,980	387	2,592	1,037	817
2022	225	84	8,202	100	1,300	18	223	3,088	404	2,684	1,074	851
2023	225	84	8,427	105	1,384	19	226	3,200	422	2,778	1,111	885
2024	225	84	8,652	109	1,468	21	229	3,317	441	2,876	1,151	921
2025	225	84	8,877	113	1,552	22	233	3,438	460	2,978	1,191	958
2026	225	104	9,102	118	1,656	23	215	3,543	480	3,063	1,225	1,010
2027	225	104	9,327	122	1,761	25	218	3,652	501	3,151	1,260	1,042
2028	225	104	9,552	127	1,865	26	221	3,765	523	3,241	1,297	1,075
2029	225	104	9,777	131	1,969	28	224	3,881	546	3,334	1,334	1,109
2030	225	104	10,002	136	2,073	29	227	4,000	570	3,430	1,372	1,144
Total	10,002	2,073	10,002	2,213	2,073	396	9,746	67,677	10,404	57,273	22,909	13,163

Year 2001-2030
mil \$ 8,981
bil. Teng 1,293

Year 1997- 2030 34 years EIRR 11.4%

Table 8.3.4 EIRR Calculation - Case 3B : Heavy Investment in Later Years

Unit: Million US\$	Cost							Benefit				Net benefit Benefit - cost
	Investment		Operation				Total cost increase	GRDP	GRDP	GRDP increase	GRDP increase - consumption	
	with the new capital construc- tion in a late growth case	without necessa- ry invest- ments for 4.4% annual growth	with balance of assets cost	without balance of assets cost	Investment + operation			with investm- ent of new capital construc- tion in a late growth	without annual growth of 4.4% from 1997- 2030	with - without	GRDP x 0.4	
1995		49							167			
1996		35							132			
1997	174	30	174	2	30	0	145	208	138	71	28	-117
1998	299	30	472	7	61	1	274	361	144	217	87	-187
1999	278	30	750	11	91	1	257	368	150	218	87	-169
2000	271	30	1,021	14	122	2	253	361	157	204	82	-171
2001	245	36	1,266	12	157	2	220	413	164	250	100	-120
2002	245	36	1,512	14	193	3	222	473	171	302	121	-101
2003	245	36	1,757	17	228	3	223	541	178	363	145	-78
2004	245	36	2,002	19	264	4	225	619	186	433	173	-52
2005	245	36	2,248	21	300	4	227	708	194	514	206	-22
2006	490	44	2,738	26	344	5	468	812	203	609	244	-224
2007	490	44	3,229	31	388	5	472	931	212	719	288	-184
2008	490	44	3,719	35	432	6	476	1,067	221	846	338	-137
2009	490	44	4,209	40	476	7	480	1,224	231	993	397	-83
2010	490	44	4,700	45	520	7	484	1,403	241	1,162	465	-19
2011	305	55	5,005	49	574	8	292	1,514	252	1,262	505	213
2012	305	55	5,310	54	629	9	296	1,634	263	1,372	549	253
2013	305	55	5,615	59	684	10	300	1,764	274	1,490	596	296
2014	305	55	5,920	63	738	10	304	1,904	286	1,618	647	344
2015	305	55	6,226	68	793	11	307	2,056	299	1,757	703	395
2016	305	68	6,531	73	861	12	298	2,187	312	1,875	750	452
2017	305	68	6,836	77	929	13	302	2,328	326	2,002	801	499
2018	305	68	7,141	82	996	14	305	2,477	340	2,137	855	549
2019	305	68	7,446	87	1,064	15	309	2,636	355	2,281	912	603
2020	305	68	7,752	91	1,132	16	313	2,806	371	2,435	974	661
2021	225	84	7,977	96	1,216	17	220	2,909	387	2,522	1,009	789
2022	225	84	8,202	100	1,300	18	223	3,016	404	2,612	1,045	822
2023	225	84	8,427	105	1,384	19	226	3,127	422	2,705	1,082	856
2024	225	84	8,652	109	1,468	21	229	3,242	441	2,801	1,121	891
2025	225	84	8,877	113	1,552	22	233	3,361	460	2,901	1,160	928
2026	225	104	9,102	118	1,656	23	215	3,467	480	2,987	1,195	979
2027	225	104	9,327	122	1,761	25	218	3,576	501	3,074	1,230	1,011
2028	225	104	9,552	127	1,865	26	221	3,688	523	3,165	1,266	1,044
2029	225	104	9,777	131	1,969	28	224	3,804	546	3,258	1,303	1,079
2030	225	104	10,002	136	2,073	29	227	3,924	570	3,353	1,341	1,114
Total	10,002	2,073	10,002	2,155	2,073	396	9,688	64,910	10,404	54,505	21,802	12,115

Year 2001-2030
mil \$ 8,981
bil. Teng 1,293

Year 1997- 2030 34 years EIRR 11.5%

CHAPTER 9

URBAN ADMINISTRATION AND ORGANIZATIONAL ISSUES



CHAPTER 9 URBAN ADMINISTRATION AND ORGANIZATIONAL ISSUES¹

9.1 Present Conditions of Urban Administration and Organizational Issues

9.1.1 Organizations

(1) Overview of Administrative and Organizational Structure

1) Governmental Tier Structure

The Kazakhstan government has a tier structure as shown in the following table.

Level	Description
Republican	Republican Ministry and State Committees
<i>Oblast</i>	Territorial divisions of the Republic, comparable to provinces. This tier includes <i>Oblasts</i> and National cities.
<i>Rayon</i>	Rural subdivisions of an <i>Oblast</i> . This tier includes Rural <i>rayons</i> and Urban townships of <i>Oblast</i>

As one of the two National cities, Astana City is classified in the second tier, together with the other National city, Almaty. *Akim* (Mayor) of Astana City is directly appointed by the President, as is *Akim* of each *Oblast*.

2) City Administration Structure

There are substantially three (3) levels in the organizational structure of the city administration.

The Municipality (*Akimat*) works as the office of the *Akim*. Directly below, there are several relatively independent organizations in charge of city administration, such as the Department of Architecture & Urban Planning. These organizations are budgeted by Astana City. This relative independence from *Akimat* is supposed to be a heritage of the former Soviet Union system, where the departments worked as a part of city administration structure and at the same time a local agency of the central government, as often observed in other Communist countries. Though these structures have started to change, there is still some duplication of functions left in the chains of command.

In the third level, there are so-called "self-supported" organizations such as ASA (formerly called Gorvodokanal). These self-supported

¹ Full text of this chapter will appear in Appendix M of Volume III: Supporting Report.

organizations provide part of public services by contractual arrangements, and are expected to sustain their activities by charging on their services.

(2) Characteristics of Current Organizational Arrangements

There are many organizations working in conjunction for the development of Astana City. Principal organizations related to the Astana City developments are explained in Appendix M of Supporting Report.

Main characteristics of current organizational arrangements are frequent changes in organizational structures and interwoven and overlapping functions where the role of one organization is not often clearly differentiated from another. For the purpose of effective implementation of the complex and heavy loaded task of the capital development, betterment in organizational structure could not be avoided.

1) The Ways of Establishment of State/City Organizations

A public state/city organization can basically be established by a decree of the President, Government or Municipality (*Akim*). The advantage of this present system is the ease in establishing (and dissolving) an organization. While this feature may be regarded as flexibility in implementing changes and reforms, there may occur often too many organizational changes in a short period in Kazakhstan, as is well known to the public.

Frequent changes in organizational arrangements, however, tend to confuse the people both inside the organization and outside as to the demarcation of responsibilities.

2) Client - Contractor Relationship

One of the distinctive features in the current institutional arrangement is the so-called "Client - Contractor relationship". It is a mutual relationship established in the organizations participating in development activities, formalized in laws/regulations of Kazakhstan.

The rule is simple and clear: the organization, either private or public, who has secured a potential investor (or has its own fund for investment) for a certain project will be a "client" of the project. The client controls entire project processes. If a private investor wants to invest its money to a public facility, the investor (i.e. the client) will prepare a plan and will supervise the project (by hiring/contracting experts).

As this system allows establishment of mutual relationship individually for each development project, it happens that there are a number of

organizations working in each interrelated functional area in parallel. This tends to cause difficulty for coordination amongst projects.

3) Unclear Definition of the "Capital" and "City"

There seems to be some confusion in responsibilities for the implementation of tasks between the Republic Government and Astana City. The national museum, newly built, was reportedly managed by the Astana Municipality and financed by Astana Finance, despite its national importance. Normally, a national facility such as this would naturally be financed and managed by the national organizations with the national budget. Exceptional arrangement such as seen in this example would make room for contradicting responsibilities, and should be avoided as much as possible.

9.1.2 Institutional Procedures for Infrastructures Development

The current institutional arrangement pertinent to the architectural/infrastructure development is basically inherited from the former Soviet Union. The characteristics thereof are summarized below.

- The laws and regulations are not well organized systematically. Accordingly appropriate laws and regulations are said to be sometimes difficult to apply to certain projects, which tends to make room for ad-hoc processing.
- SNiPs (Technical Standards) and CN (Construction Norms) determine technical standards in relation to architectural/infrastructure developments. These standards and norms were developed under the Communist regime and tend to lack considerations for the necessity or demands, or sense of market economy. Thus, the specification of facilities is inflexible, and often excessive compared with demands. This apparently hinders economic rationality of projects.

In addition, the procedures of examining qualifications and acquiring licenses of architects and infrastructure engineers are reportedly not determined clearly. Therefore, the technical and normative qualities of development plans are considered not to be warranted by licenses.

Technical and normative issues are controlled by specific organizations.² The Department of Architecture and Urban Planning under *Akimat* examines development application and issues development permissions in relation to urban

² Basic procedure of architectural and infrastructure development are shown in Supporting Report M.

and architectural developments. Republic level subcommittee of *Kazstroicommitee* (Committee for Construction), which is under the Ministry of Energy and Mineral Resources, takes this role for all infrastructure developments in Astana City³. Applications for projects are considered individually by these organizations in reference to the approved Master Plan by well-trained experts.

As explained above, urban and architectural developments are controlled by Astana Municipality, whereas infrastructure developments are controlled directly by the Republic. It seems better to delegate authorities concerned with infrastructure developments to the Astana Municipality to consolidate and harmonize the inter-related processes. The delegation will lead to a simpler coordination system between urban, architectural and infrastructure developments, which are interrelated to each other.

9.1.3 Investment Climate for the Development of Astana City

Private direct investments would accelerate and diversify the development of Astana City and complement the needs for public investments. Technologies and know-how that foreign companies bring into Kazakhstan would also benefit the society.

There are a few issues to be considered in the promotion of private investments.

(1) Special Economic Zone Management

The Astana Special Economic Zone (Astana SEZ) has been established by the presidential decree of 9 October 1996. In Astana SEZ, the designated companies received benefits of tax exemptions. The delineated area as Astana SEZ covered the entire Astana City area. Astana SEZ was finally dissolved in 2000.

There are presumably a few reasons for this. First, SEZ has double edges; SEZ attracted investors yet it leads to the reduction in tax revenue. Second, the published incentives such as tax reduction rates⁴ were not consistent, that is different figures in different documents, and this probably created uncertainty in investors and discouraged them.

³ As a basic rule, infrastructure developments are controlled either by Republic level or city level subcommittees of *Kazstroicommitee* depending on project costs. In Astana and Almaty, however, all infrastructure developments are controlled directly by the Republic level committee. See Supporting Report M.

⁴ See detailed analyses in Supporting Report M.

(2) Other Possible Constraints in Investment Climate

There are a few problems in general investment climate, as often pointed out by international law firms. Main problems are;

- Frequency in changing laws/regulations
- Backdated enforcement of law/regulations
- Amendments in basic definitions of law
- Inconsistency of laws

These issues should be tackled and solved so as to make a stable and reliable environment for domestic and foreign investors to actively participate in the direct investment for the capital development of Kazakhstan. If the problems are left unattended, these issue only distract the investors.

9.2 Urban Institutional and Organizational Improvement

9.2.1 Reasons of Consideration

The capital is the central, and single most important city of a country, with core political and central governmental functions. It also represents the image of the nation. Often, the image of a nation is not derived from the hardware of a society but also from the evaluation/perception on institutional and organizational arrangements.

Presently, it seems to be an imperative to establish stable and lasting institutional and organizational structures, as a basis for the development of Astana City and for Kazakhstan, based on the following considerations;

- Almost ten years have passed since Kazakhstan became independent. With the disintegration of U.S.S.R, Kazakhstan is no longer protected in a large system. Kazakhstan needs to compete and survive in the international society, which is dominated by a tenet of market economy.
- In order to be competitive, it is critical to improve the efficiency of the administrative system and reduce the so-called "transaction costs". The transaction costs are defined as the costs of coordination among people /organizations.
- The resources, both natural and human, are limited. Effective usages of resources could be derived from better performance and coordination of the development activities of Astana and its economy.

In this regards, it is necessary to take into account several factors, as discussed below.

(1) Clear Demarcations and Procedures

Unclear demarcation of administrative and organizational functions and ambiguous definition of administrative procedures of development activities tend to create redundancy of functions such as overlapping jobs. This not only reduces the effectiveness and speed of the capital development, but also may discourage those who are in the relevant organizations to actively take part.

It is important to note that the unclear and ambiguous demarcation will be a constraint for attracting foreign (and even national) investments, and weaken business promotion. Establishing clear, stable and lasting structures with clear demarcations and well-defined procedures shall be the basis of creating the much-needed transparency for the international donors/investors as well as those of Kazakhstan.

(2) Devolution of Authority

One of the ways for using limited human resources to maximum is devolution of authorities, or in other words, separation of the roles and responsibilities based on the expertise and experience. For instance, higher officials would shift to concentrate on long-term strategic issues, whereas lower officials would deal with routine works.

This would presumably reduce the loads of higher officials, and utilize their expertise better. The devolution is expected to shorten the time to complete and materialize the development process. Devolution of authority is a means to avoid obligations without authorities, which would make lower officials feel reluctant and less constructive.

9.2.2 Consideration on Organizations and their Demarcation

(1) Factors in Consideration

There are several factors that need to be contemplated in selecting appropriate organizational structures to establish effective demarcation and coordination among different functions. The development of Astana City involves organizations in different tiers; the Republic level and Astana City level, and inside the Astana City level. It is suggested that the demarcation between the Republic Government and Astana City would be made in consideration of the following factors.

- Separation or collaboration for the planning of the new capital
- Form of separation: facility-wise demarcation or area-wise demarcation
- Form of collaboration: establishment of a joint commission or one special body
- Utilizing an existing organization or establishing a new one
- Temporary or permanent structure of organization
- One body control or multiple body control
- Form of organization: governmental body, state company, or private company

(2) Analyses of the Demarcation Patterns of Other Nations' Experience

Development or transfer of the Capital is not a new phenomenon. Other nations have conducted (or conducting) this before, experiences of which would be valuable for Kazakhstan.

Figure below shows the 4 patterns of functional demarcation between the national level and city level following the experiences of 3 countries.

1) Washington D.C.

The characteristic of the Washington D.C. pattern is a facility-wise functional demarcation of planning and implementation.

- The Federal Government is responsible for planning and implementation of facilities in relation to the Federal Government; D.C. (District of Columbia) Government is responsible for those in relation to the locality
- Each government has one public controlling body

In this demarcation pattern, each government can control the entire development process of the facility of its own. It is, however, necessary to facilitate an effective coordination mechanism between the two governments.

2) Berlin

This pattern of Berlin, the new capital of Germany, is characterized by formation of a joint commission for planning, and establishment of a limited liability company as an "agent"⁵ of the Federal Government.

- The Federal Government and the City Government formed a Joint Commission as a coordination body and to consolidate "wisdom of many". The commission has several working groups under the commission for respective relevant issues, such as transportation.
- The Federal Government established a limited liability company to function as its agent, which became a virtual controlling body for construction in the implementation stage.

3) Canberra 1st period (1957-1988)

In the 1st period of the development of the new Australian capital, Canberra, the Federal government established an independent commission named "National Capital Development Commission (NCDC)". NCDC had the sole power on planning and implementation in the designated capital area, the Australian Capital Territory (ACT). NCDC was budgeted by the Federal government, and had the authority of issuing development permissions.

The characteristic of this pattern is the establishment of an independent commission with full power on the capital development activities. This is

⁵ An agent is an organization that is given authority by others (i.e. "principals"), and acts on their behalf for their benefits.

a powerful implementation system. With the strong power, however, there is a possibility of malfunctioning check and balance, resulting from the concentration of authorities

4) Canberra 2nd period (1989-)

Up to 1988, the Federal Government directly governed ACT; there had not been an independent local government. Upon the establishment of the ACT Government in 1989, the demarcation structure was changed duly.

The characteristic of this pattern is an area-wise functional demarcation. The ACT was divided into two (2) areas; designated area and the other area, and ACT Planning Authority (ACTPA) was formulated. The designated area comprises the core of the new capital that defines the characteristics of the capital. The demarcation between National Capital Planning Authority (NCPA) and ACTPA was made as shown below.

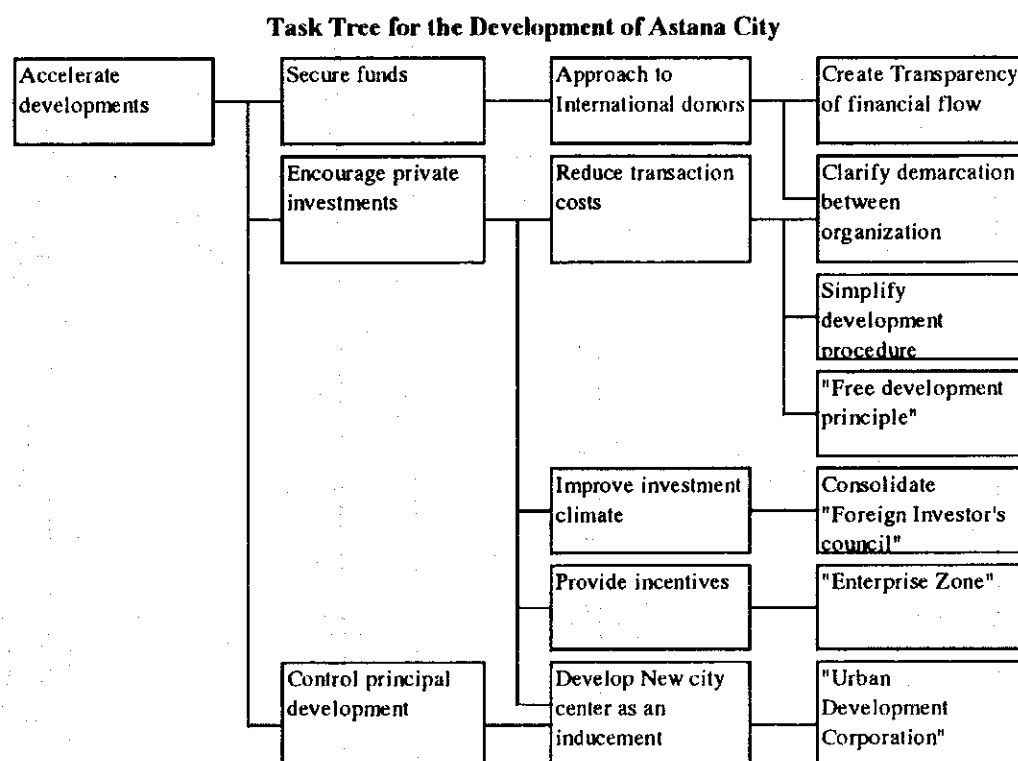
	City Planning		Development Permission
	Master Plan	Detailed Plan	
Designated area	NCPA and ACTPA	NCPA	NCPA
Other area		ACTPA	ACT Government

	Washington D.C.	Berlin	Canberra 1st period	Canberra 2nd period
Basic Planning	<p>Federal Government: Federal Element e.g. federal governmental and international organizations facilities</p> <p>DC Government: DC Element e.g. DC governmental facilities</p>	<p>Joint Committee (Federal Government & City Governments)</p>	<p>Independent Commission (National Capital Development Commission)</p>	<p>Federal Authority (National Capital Planning Authority): General planning and the Detailed Planning of the Special Territory</p> <p>ACT Planning Authority: General Planning and the Detailed Planning of the Area except the Special Territory</p>
Implementation - Detailed Planning - Construction	<p>Federal Government: Federal Element e.g. federal governmental and international organizations facilities</p> <p>DC Government: DC Element e.g. -DC governmental facilities</p>	<p>Limited Liability Company (An agent of the Federal Government)</p>		<p>Federal Authority (National Capital Planning Authority): Special Territory</p> <p>ACT Planning Authority/ACT Government the Area except the Special Territory</p>

9.3 Proposals of Organizational Structures and Reform in Institutional Arrangements for Effective Implementation of Capital Development

9.3.1 Structure of Development Strategy

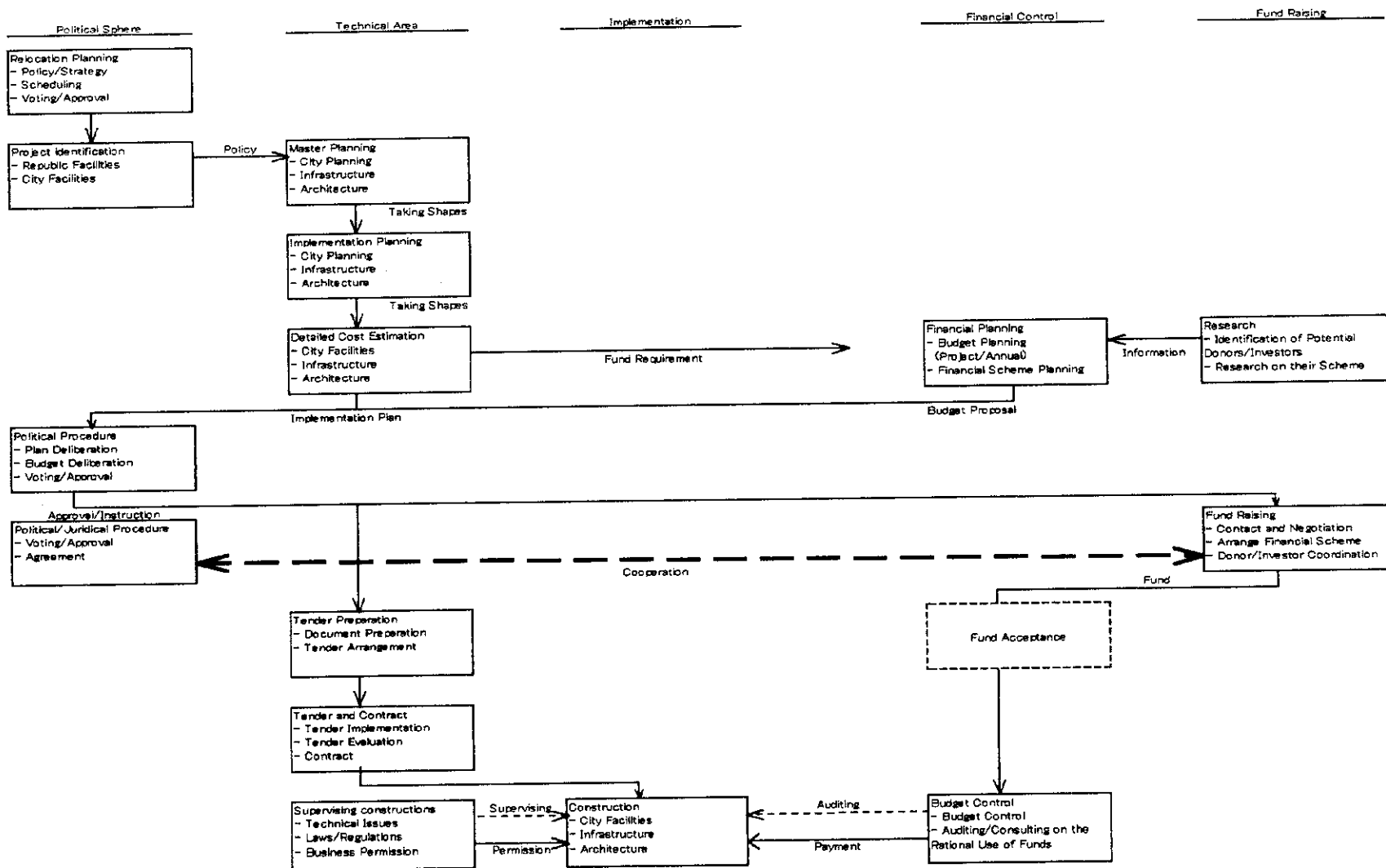
Organizational improvements and institutional reforms are related to and reinforce each other. To execute both measures together as a unified development strategy is crucial and most effective. The chart below shows the structure of the strategy. Each factor will be discussed in the following sub-sections.



9.3.2 An Ideal Procedure on the Development

Figure on the next page depicts a proposal of ideal procedure for the development activities in Astana. Though there are a number of other related factors to the development of Astana City, the chart shows a simple procedure, which is often the most stable and understandable, and thereby creates transparency.

In the figure, each column indicates different function that requires different expertise. Difference in functions also affects the form of an executing organization and its management system. Designing clear procedure for the development of Astana City will pave the way for consolidation of relevant organizations.



9.3.3 Possible Organizational Structure for the Implementation

(1) Basic Discussion

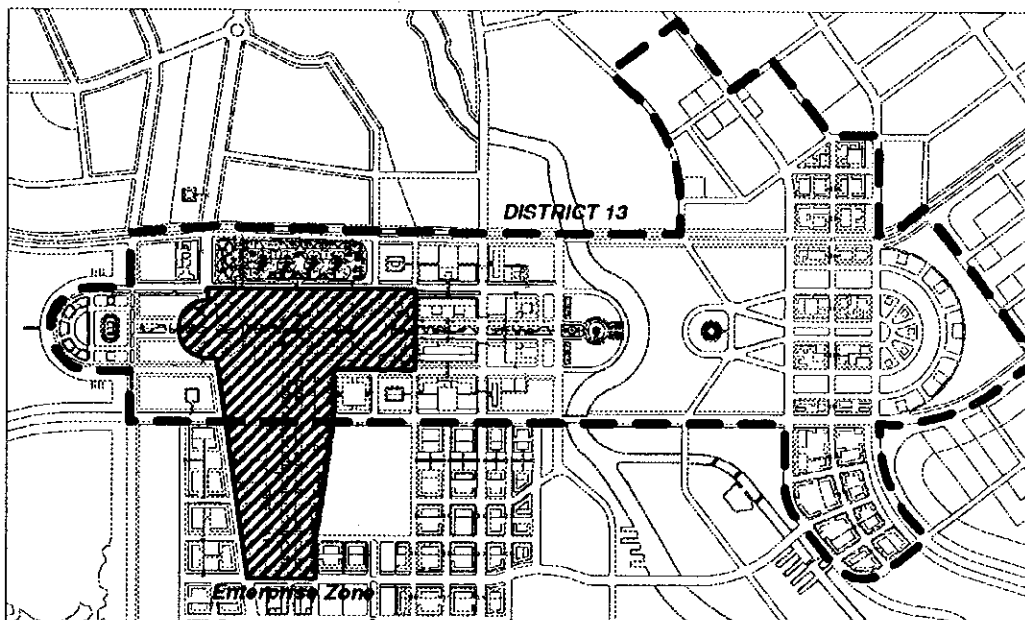
Development of a city is a long and complex process: a city is an organic entity that is continuously changing in accordance with its development. A systematized development process together with the clear and stable demarcation among relevant organizations could foster efficiency of development process by reducing the transaction costs.

It is necessary to firmly establish long-lasting institutional and organizational structures for controlling the implementation process of the development of Astana City. This is particularly important if the human capacity in coordinating development activities is considered.

(2) Proposal of Possible Organization Structure

1) Demarcation

In this Master Plan, major republic functions such as the political and diplomatic functions are concentrated into District 13 as shown below.



This district has national importance and also constitutes a new center of future Astana City. Development of this district will be an important element in the successful implementation of city developments, as it will induce private investments into surrounding areas.

Prerequisite for the Astana development is to clarify the demarcation between the Republic Government and the Astana Municipality and to control principal development duly.

In light of the national significance, it is proposed herein that the Republic Government takes responsibility for the development of District 13 separately, while Astana Municipality shall take the equivalent responsibility for other areas.

Regarding infrastructures such as water, sewage and road, for example, the responsibility for implementation will rest on Astana Municipality. These infrastructure facilities will be interrelated networks, and thereby these have to be controlled integrally by Astana Municipality, which has experiences in the field.

This demarcation on the responsibilities of city developments will be described as below.

Area/Subject	Republic Facilities	City Facilities	Private Facilities
District 13	Republic Government	Republic Government	Republic Government
Areas outside District 13	Republic Government	Astana Municipality	Astana Municipality
Infrastructure	Astana Municipality	Astana Municipality	Astana Municipality

2) Establishment of the Agent of the Central Government

Within the present organizational structure, the Government of RK has no specific organization that could manage the implementation of urban development. It is recommended therefore that the Republic Government will establish an organization in charge of the implementation of District 13 development.

One of the effective ways of managing the developments of District 13 is to establish a Joint Stock Company as an agent of the Republic Government. This scheme was used in the capital transfer (1994) of Berlin, Germany after the consolidation of West and East Germany. The Government established a limited liability company as an "agent" of the Federal Government. An agent refers to an organization that is given the authority to act on behalf of the principal body, for which the agent is designated.

The purposes of establishment of such a company were;

- To shorten decision-making time,
- To reduce the work load of detailed planning by effectively outsourcing the work through this company to private design companies and constructors,
- To reduce the coordination work among the governmental organizations (by transferring each governmental organization's pertinent authority to this company),
- To utilize the know-how and managerial skills of the private sector.

There is a similar scheme in UK called "Urban Development Corporation (UDC)". UDC is established to accelerate the redevelopment of the central area of a city.

This type of organization, similar to those of Berlin and UK, would be appropriate for the development of District 13 of Astana City. It is therefore recommended to establish a State Enterprise of Central Development (SECD; a tentative name), the general idea of which will be as below.

- SECD shall be established by the Government of RK and the Board of Directors be appointed by the Government. The Board of Directors shall include a representative of Astana City.
- The staff of SECD will be specialists in the relevant areas such as architecture, finance and management. Most of the staff will be selected through public notice, while the Republic Government will appoint the remainder.
- The authority of SECD will be given by the Government of RK and will be limited to the development of District 13.
- SECD shall exist only for a limited period (say, about 10 years) and will be dissolved after completion of its task.
- SECD will control the funds provided by the Government of RK for the capital development. The company can also borrow funds from the Government of RK or from international financing organizations.
- Land tenures of District 13 will be transferred to SECD after compensating to current owners. SECD can sell land and accumulate the payment for using other development of District 13.

The functions of the company will be;

- Making detailed development plans of the area,

- Designing and construction of republican facilities by sub-contracting the necessary work to private companies,
- Execution of tenders and selection of a contractor,
- Scheduling and cost controlling,
- Quality management,
- Issuance of completion certificates, and
- Facilities management.

3) Astana Municipality

For the development of the area except District 13, *Akimat* will be the responsible for management. *Akimat* needs to assign certain department(s) to coordinate the ongoing urban, architectural and infrastructure developments of the developments of Astana City.

Rendering development permissions for infrastructure developments is currently the responsibility of *Kazstroicommittee* of Republic level. In order to simplify and accelerate the development permission procedures, transfer of the authority to another organization under *Akimat* (by appointing the authority to existing organization or reorganized existing organization) will be an alternative worth considering.

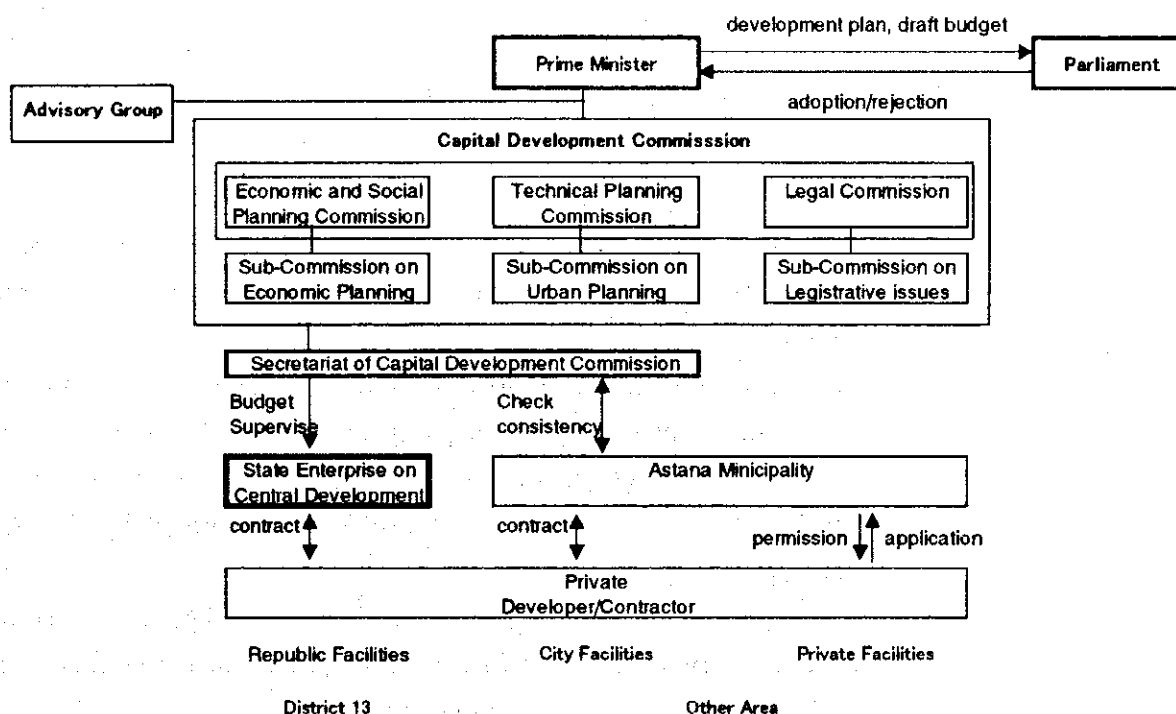
4) Coordination between Republic and City based on the Master Plan

Regarding political decision-making, a choice will be to formalize and stabilize the Working Group for the Development of Astana City as a permanent joint commission (tentatively named Capital Development Committee) at the Republic level. Together with this formalization, it will be advisable to separate political function and practical/technical functions as sub-commission structure. In the implementation stage of the Master Plan, there will be a number of practical tasks that require professional expertise in each functional area. Necessary experts will be appointed based on their expertise. Each commission may well be manned by related ministers (or high ranking officials in the relevant ministries) and each sub-commission will be staffed with specialists of public and private sectors.

Commission and sub-commissions will meet regularly and discuss the detailed plans prepared and submitted by the State Enterprise of Central Development (SECD) and Astana City.

The secretariat of the commission will work as a coordinator of commission members. The secretariat will be budgeted by the Government of RK.

This structure of related organizations, particularly the relationship between the Commission, SECD, and Astana Municipality, is shown below.

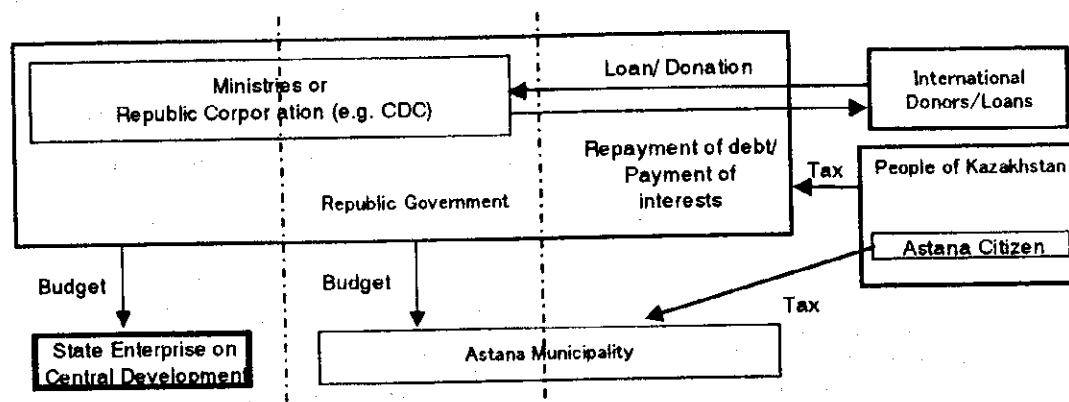


(3) Cash Flow of the Development of Astana City

To clarify the cash flow in relation to the development of Astana City is another important issue. For financing the capital development, it is necessary to capitalize on international funds as well as foreign or domestic private investments. Based on the demarcation above, the responsibilities on fund control are proposed as below.

Investors	Responsibility
Republic Government	<ul style="list-style-type: none"> All Facilities except infrastructure networks in District 13 Republic Facilities in the areas outside District 13
Astana Municipality	<ul style="list-style-type: none"> Municipal Facilities in District 13 Municipal Facilities in the areas outside District 13 Infrastructure of whole Astana City
Private Investors	<ul style="list-style-type: none"> private facilities in District 13 private facilities in the areas outside District 13

Basic scheme of the intended cash flow is illustrated below.



In this scheme, the principles are as below.

- The Borrower of international funds should be one of the republic ministries or a republic state corporation guaranteed by the Government of RK.
- All the development in District 13 will be managed by SECD including the facilities financed by Municipality and financed by private investors.
- Republic Facilities financed by the Republic Budget to be developed outside District 13 follow the regulations determined by the Astana Municipality.
- The representatives of Republic Ministries or Republic Corporations should supervise the infrastructure developments that are financed either by Republic budget or international funds.

(4) Encouragement of Private Investments

Development outside District 13 should follow the principle of market economy: individual participant in urban development could develop their new business on their self-interests as far as they follow the laws and regulations.

In order to further enhance this, it is recommended to convert the discipline of development from the present "Basically Regulated" to "Basically Free". The difference between two disciplines is described.

Discipline	Definition	Countries
Basically Regulated	<ul style="list-style-type: none"> • To check any project by related authorities before implementation • Relies on the personal decision of authorities 	e.g. Kazakhstan, UK
Basically Free	<ul style="list-style-type: none"> • To check according to the regulation • Basically people can develop as they like as far as they follow regulation • Relies on the regulations 	e.g. Japan

Prerequisites for this conversion are re-organization of existing laws/regulations and changes in the way of defining articles suitable to a market economy. It is recommended, for example, to change the way of regulation from defining standards to minimum requirements so that private investors can utilize their ideas and experiences better.

It is also important to increase the technical skills and knowledge of private architects, developers, and constructors. It is recommended to improve the certification and licensing system, and clarify their responsibilities. It will reduce the load of examining and supervising of development processes.

9.3.4 Investment Promotion

(1) Basic Discussion

The image of a country does not only depend on the developed hardware but also on institutional arrangements. Development of the capital is an ideal opportunity to establish the appropriate and functioning institutional arrangements. This will be desirable and beneficial for potential investors, as well.

There are two areas that should be discussed; i.e. improvement of general investment climate and investment promotion specifically for the development of Astana City.

(2) Proposed General Improvements in Investment Climate

1) Re-organization of Procedure of Enacting and Enforcing Laws

One of the possibilities of improving the investment climate by means of institutional arrangements is establishing a clear and simple procedure for enacting and enforcing laws. Such a procedure would reduce uncertainty on the part of potential investors pertaining to their decision making.

Inconsistency among related laws would create confusion to potential and existing investors. The improved procedures should incorporate effective checking mechanisms based on international practices before enforcing a law. It would be useful to have an advisory commission including foreign institutional experts such as lawyers.

The Kazakhstan Government has made by now substantial efforts to improve investment climate. The Foreign Investors' Council (FIC) is one of the achievements. FIC consists of large international companies in the

fields of accounting and law. FIC currently works as an advisory body for the President. If FIC would participate to examine new laws or amendments of existing laws before enforcements of them, FIC can work as an effective mechanism to check consistency and appropriateness based on international experiences. It is a means to avoid frequent amendments. This procedure must also be authorized duly and open to the public.

(3) Proposed Measures of Investment Promotion for Development of Astana City

Tax reduction or even exemption scheme is a strong incentive for private investors, although tax reduction also leads to a decrease in revenue of governments. Regarding this double-edged nature, one of the possible forms of application of the scheme is to apply it to some limited area. In UK, Enterprise Zone scheme (EZ), which is a tax exemption scheme, is used for accelerating the regeneration of fatigued cities as an incentive to private investors. If a similar scheme is to be applied to Astana City, the general idea will be as below.

- To exempt fixed asset tax for limited terms (in the UK case, 10 years) in a designated area.
- To exempt corporation tax and income tax in relation to the new development or extension of buildings for commercial and industrial use for limited terms
- To give priority in dealing application of customs duties for the investors to this area
- To simplify the application procedure of development for the investors to this area
- To complement the reduction of city revenue by using Republic governmental budget

The purpose of EZ is not only to accelerate the development of the designated area but also to induce private investments to neighboring areas by creating a new functional core. Well developed business and commercial areas in the vicinity of the central governmental offices will be an attractive target for private investors.

It is recommended to apply EZ to the business area of the New City Center (indicated by hatching on the figure in 9.3.3. (2)), consisting of business and commercial functions. The application of EZ will provide a strong impetus for the development of the New City Center.