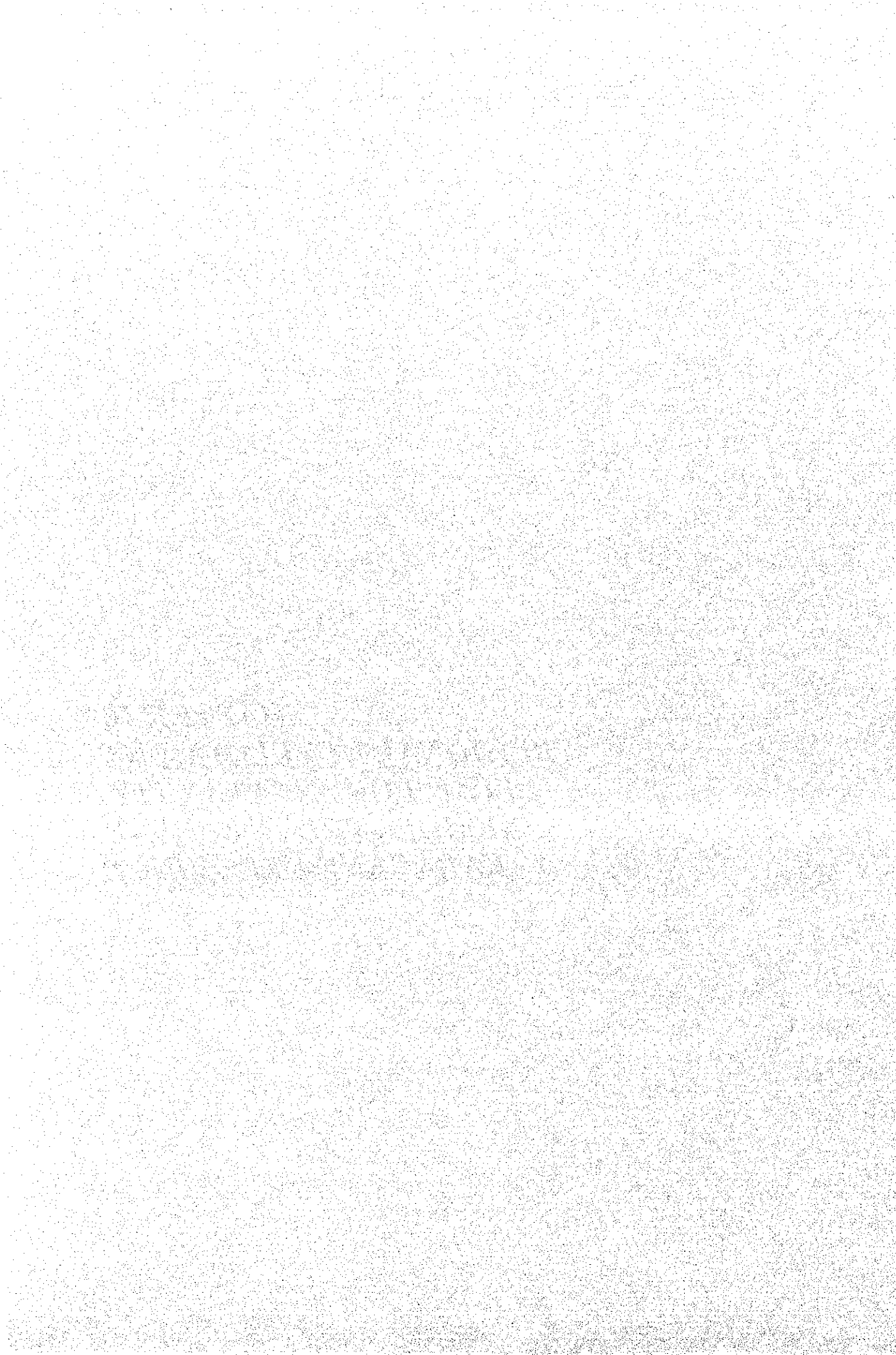


CHAPTER 10
REGIONAL DEVELOPMENT
PLAN FOR ASTANA CITY,
AKMOLA PROVINCE AND
KARAGANDA PROVINCE



CHAPTER 10 REGIONAL DEVELOPMENT PLAN FOR ASTANA CITY, AKMOLA PROVINCE AND KARAGANDA PROVINCE¹

10.1 Objective of Regional Planning

The City of Astana is expected to grow as the national center of administration, business and commerce in Kazakhstan. To achieve the development of Astana, promoting development in the surrounding area would be indispensable. With this objective, a regional development plan was worked out covering Astana and the surrounding area. The area covered includes the City of Astana, Akmola Province and Karaganda Province, mainly its northern area between Karaganda City and Astana City. Astana used to be the provincial capital of Akmola Province until 1997 with close economic ties within the Province especially in terms of supply of agriculture produce and agro-processing products. The City of Karaganda, a major industrial city in Kazakhstan, will maintain its important role in supplying mainly ferrous- and non-ferrous metal products as raw material of various industrial products to Astana and Akmola Province. Astana, on the other hand, would serve as the international gateway and regional hub as well as provide various administrative and high standard urban services and finished industrial goods to Akmola and Karaganda. These three administrative areas are abbreviated as "AAKR", Astana, Akmola and Karaganda Region.

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

10.2 Present Condition of AAKR

10.2.1 AAKR in National Context

Socio-economic characteristics of AAKR in the national context is summarized as follows.

- The shares of AAKR to Kazakhstan are 17% in population, 21% in land area and 15% in the size of economy.
- Among the three administrative areas of AAKR, Karaganda Province is the largest, accounting for 55% of the population, 74% of the area and 65% of the economy.
- GRDP per capita of AAKR at \$1,303 in 1998 was 86% of Kazakhstan with a variety by area: 22% higher in Astana (US\$ 1,852), 54% lower in Akmola (US\$ 697) and 2% higher in Karaganda (US\$ 1,547). (US\$ 1 = Tenge 76.9 in 1998)
- The lower income per capita in Akmola Province is due to its higher dependence on the agriculture sector, accounting for 19% of gross regional domestic product (GRDP). Those in Astana City and Karaganda Province were 0% and 5%.
- Most spheres of the Kazakhstan's economy experienced a decline since the Kazakhstan's independence in 1991 until 1998. Recent two years, however, saw an upturn of economy: industrial production up by 2.2% in 1999 and 12.1% in July 2000 compared with July 1999. The agriculture sector grew by 29% and 9.2% in 1999 and 2000 respectively. Positive growth is experienced also in AAKR since 1998.

10.2.2 Existing Socio-Economic Condition of AAKR by Sector

(1) Industry

A wide range of industries with an advantage in Astana constitute consumer goods including agro-processing and textile/clothing, construction related industries including timber/wood related, rubber/plastic products and non-metal mineral products and paper related products. Apparently the construction boom resulting from the designation as the new capital affected industrial production structure in Astana. Industrial production in Akmola Province and Karaganda Province are concentrated in lesser types of products. Timber/wood related products in Akmola Province are advantageous with a rich forestry reserve in the province. Chemical industry is also prosperous in Akmola. Karaganda Province is characterized by its concentration in mineral

resource-related activities. Mining of coal and metal ore accounts for 26% and 14% of Kazakhstan respectively. Karaganda Province is the largest area in metallurgy industry with ferrous metallurgy monopolizing the national production and non-ferrous metallurgy production accounting for 49% of the national production. Consumer goods, on the contrary, are not produced within the province at such a level as to meet the provincial demand, and are most likely dependent on purchase from other provinces.

Industrial products with growing production in 1998 and 1999 in Astana include food and beverage (fat, meat, dairy product, beer) textile and cloth products, construction materials (building materials such as window, doors, plastic products), furniture, printing and publishing and electricity and heat. An increase in population due to the national capital relocation to Astana contributed to an expansion in the production of certain types of consumer goods. Heavy construction works resulted in accelerated manufacturing of construction and building materials in Astana.

(2) Agriculture

Akmola Province produced 3,576 thousand tons of grain in 1999, accounting for 25% of the national production. Akmola Province forms a part of Kazakhstan's granary comprising Kosatanai Province, North Kazakhstan Province and Akmola Province. Both in Akmola and Karaganda Provinces, the grain production in 1999 hit the highest level since 1995, with an annual growth rate in the 4 years at 10.0% per year and 4.6% per year respectively. The corresponding growth rate for Kazakhstan was 10.6% per year.

Grain production per capita in Akmola Province at 4.3 tons per person is more than four times higher than that in Kazakhstan. The fertility of Akmola's land is indicated by most produce except vegetables and wool. Vegetable production is still at a low level both in Akmola and Karaganda Provinces, implying the necessity for agriculture development by irrigation and greenhouse farming. Wool production is also low in the two provinces.

Though not appearing in the official statistics, dacha farming is practiced in an area of 1,283 ha in the periphery of Astana City, playing an important role in supplying mainly vegetables to the urban population. Some of the challenges in the agriculture sector include recovering soil condition deteriorated by repeated cultivation and promotion of farm mechanization better suited to the reduced farm sizes as caused by the dissolution of the socialistic collective farming system.

10.2.3 Existing Spatial Structure of AAKR

Figure 10.2.1 presents the basic spatial structure of AAKR. There are two major axes going through AAKR, one in the north-south direction and the other east-west direction. The City of Astana is located at the crossroad of these two major axes. The north-south axis is formed by the republican highways No.P9 and P2 and the national railroad. These republican roads and railroad run from Almaty all the way up to the Southern Russian towns of Kurgan and Omsk, through major cities in AAKR such as Karaganda City, Astana City and Kokshetau City.

The east-west axis is constituted by the national roads No F2 and P23 and the railroad. The national road No.F2 connects Astana to the west with Kostanai and Chelyabinsk in Russia and road No. P23 to the east with Pavlodar and further Novosibirsk in Russia. The east-west railroad line runs closely along this route.

Figure 10.2.2 presents a road network and urban hierarchy in AAKR. A dense local road network is developed in the hinterland of the east-west axis and the north-south axis in AAKR. Higher order urban centers are found along these routes, especially along the north-south axis such as Kokshetau, Schuchinsk, Makinsk, and Akkol. Schuchinsk on this axis functions as a gateway to the popular Baraboe National Park and supplements to Kokshetau in producing agro-processing products. Atbasar in the west and Ereimentau in the east on the east-west axis function as the nodes for their hinterlands. Stepngorsk developed independently capitalizing on its rich mineral resources apart from the total spatial development pattern in AAKR.

Table 10.2.1 presents the functions of the major and secondary cities in AAKR.

10.2.4 Problem Structure of Kazakhstan and AAKR Economies

The Kazakhstan and AAKR economies suffer from a variety of problems of different nature and phase and mutually related. Figures 10.2.3 and 10.2.4 show a structure of problems in the industrial/service sector and agriculture sector to identify key problems to be tackled. The following table summarizes the key problems and policy directions.

Key Problems and Policy Direction

Basic factor	Key Problems	Policy Directions
Human	Inexperience in market-economy	Human resource development
	Lowering technological level due to outflow of capable workers/engineers	
Policy/institutional	Unstable macro-economic condition	Sound macro-economic management as prerequisite for all the other factors
	Lack of investment and operation fund	Strengthening private lending mechanism
		Strengthening public financial support schemes
	Limited financial capability of government and inadequate support measures	Strengthening of public finance structure
		Prioritization of public support measures and preparation of an effective support measure package
	Unfavorable investment environment	Improvement of physical infrastructure and laws/regulations/procedures

Full transition to a market-oriented economy would be possible only with a sufficiently large stock of human resources in all spheres of economy adapted to market-oriented operations. Decline of the technological level caused by emigration of competent workers and managers should be overturned by upgrading the technological level of local human resources by providing training programs.

Sound macro-economic management is the prerequisite for all kinds of measures for economic development. Lack of investment and operating fund should be solved by an increasing role of commercial banks through financial sector reform as well as by an expansion of the government financial support schemes where private lending is infeasible. The financial capability of the government needs to be strengthened by public finance restructuring. Support measures by the government should be prioritized so that an effective package of support measures can be prepared within a limited budget resource. The government has the sole responsibility to improve the investment environment in terms of physical infrastructure and laws, regulations and procedures.

10.3 Advantages and Constraints

The advantages and constraints of Kazakhstan and AAKR are analyzed below. Development strategies for AAKR are to be worked out in such a manner as to fully capitalize on its advantages and minimize constraints.

10.3.1 Advantages and Constraints of Kazakhstan

Advantages

- Endowment of rich natural resource (oil, natural gas, coal, various mineral resources such as titanium, chrome, gold, silver, copper, rare metal/earth)
- Vast land area/arable land
- Strategic location between Asia and Europe
- Improving access with Europe and Asia (“Eurasia Land Bridge Project²”, “Druzha-Aktogai Railway Improvement” etc.)
- Comparatively well-developed infrastructure system (electricity, road, telecommunications) for its economic level
- Existence of well-educated human resource
- High level medical and health care system equivalent or superior to those in developed countries

Constraints

- Geographic condition as a land-locked country with no direct marine gateways
- Long distance from European and Asian Markets
- Limited access to European and Asian Markets
- Limited availability of water resources
- Unfavorable investment environment from the eyes of foreign investors in laws and procedures
- Shortage of modern technology
- Human resources with limited experience in market economy
- Deteriorating infrastructure and production facilities

² Eurasia Land Bridge Project aims to strengthen the link between East Asia and Europe by developing a combination of communication infrastructures passing through the Central Asia including Kazakhstan. This project would expand trading of resources such as energy and food on the Eurasian continent.

10.3.2 Advantages and Constraints Specific to AAKR

Advantages

- Geographical location at the central node of the international and inter-regional transportation networks and proximity to Russia
- Good transportation links with other part of Kazakhstan by road, railway and air routes.
- Availability of fertile agriculture area (Akmola)
- Availability of unused water resources such as groundwater and the Irtysh – Karaganda Canal water
- Availability of vast land with solid foundation (Astana)
- Accumulation of industrial technology centering around agriculture machinery in Astana, timber/wood and chemical industry in Kokshetau and mining, chemical and metallurgy industry in Karaganda Province.
- National capital status of Astana with an improving investment environment and easy access to government organizations for private sector entities in AAKR
- Existence of well-educated human resource.
- Endowment of international-class natural tourism/environmental resources in Akmola Province such as Baraboe National Park, Kokshetau National Park and Kolgalgin Preservation Area.
- Endowment of rich mineral resource in Akmola and Karaganda Provinces.

Constraints

- Limited direct access to the western part of Kazakhstan
- Long distance from Almaty, the largest market in Kazakhstan
- Drain of experts and capable personnel to other countries causing lack of competent workers and managers at production level
- Emerging environmental problems, especially in small towns where mixed land use pattern deteriorates the living condition of the people.
- Low income level of the rural population, limiting demand for industrial goods and straining use of various agriculture input such as machinery and fertilizer.
- Severe climatic condition, especially during winter
- Limited availability of accommodation, recreational facilities and infrastructure facilities at potential tourist destinations.

10.4 Regional Development Policies and Strategies

10.4.1 Existing Development Policies and Targets of the Kazakhstan Government

The government of Kazakhstan has produced the following four documents concerning national and regional development policy.

- “Kazakhstan 2030” by President Nazarbayev
- Regional development policies prepared by Kazinvest
- Indicative Plans by Year 2005 for Kazakhstan and each province
- “Blooming of Astana is Blooming of Kazakhstan”

There was information from the Ministry of Economy and Trade that the following documents concerning the regional development policy in Kazakhstan are under preparation: “Draft Concept of State Regional Policy up to Year 2005” and “Diagram of Development and Location of Production Forces of Republic of Kazakhstan up to Year 2015”. Upon completion and release of these documents, they will be reviewed and integrated into the present study.

A brief explanation on the four documents listed above follows.

(1) “Kazakhstan 2030”

“Kazakhstan 2030”, prepared by President Nazarbayev in 1998, presents the goals of Kazakhstan to be achieved by the year 2030. It analyzes the advantages, opportunities and shortfalls of Kazakhstan and presents the long-term priorities as follows.

- National security
- Domestic political stability and consolidation of the society
- Economic growth based on an open market economy with high level of foreign investments and internal savings
- Health, education and well-being of Kazakhstan citizens
- Effective utilization of power resources (oil and gas) to gain sufficient revenues for ensuring stable economic growth
- Development of transport and communication infrastructure
- Establishment of a professional state with an effective and up-to-date corps of civil servants

(2) Regional Development Policies of Kazakhstan by Kazinvest

The Kazakhstan government presents the regional development policies of Kazakhstan in “Investor’s Guide 1999-2000” prepared by Kazakhstan

Investment Promotion Center ("Kazinvest"). It classifies the provinces in Kazakhstan into the following 4 groups and indicate the policy directions.

Group 1:

- a) Atyrau, Aktyubinsk, Mangistau, Western-Kazakhstan, part of Kyzylorda, Zhambyl
- b) Rich mineral and hydrocarbon resources and socio-economic backwardness in the rural area
- c) The priority is to attract investors to modernize production technology.

Group 2:

- d) Eastern Kazakhstan, Pavlodar, Karaganda, Kostanai, Northern Kazakhstan
- e) Heavy industry areas
- f) The priority is to restructure production with modern technology and management improvement.

Group3:

- g) Northern Kazakhstan, Akmola, Kostanai, Zhambyl, South Kazakhstan, Western Kazakhstan, Almaty (province)
- h) Agriculture area
- i) The priority is to expand agriculture and agro-processing production.

Group4:

- j) Rural areas of Atyrau, Mangistau, Karaganda, Southern Kazakhstan
- k) Depressed regions with social crisis
- l) The priority is to initiate a step in promoting local-resource based production and improve living condition with foreign humanitarian assistance.

(3) Indicative Plans until 2005 of Kazakhstan and AAKR

Each province in Kazakhstan prepares indicative plans until 2005, containing policy directions and economic growth targets. The economic growth targets of Kazakhstan, Astana City, Akmola Province and Karaganda Province are summarized as follows.

Economic Growth Targets of Indicative Plans until 2005

(Unit: average annual growth rate in %/year between 2000 and 2005)

Area	GDP/GRDP	Agriculture	Industry	Service
Kazakhstan	4.2	1.9	4.2	n.a
Astana	n.a	-	11.8	n.a
Akmola	n.a	2.7	2.2	n.a
Karaganda	n.a	2.9	4.5	n.a

Note: No calculation is made for GRDP at provincial level. The values for agriculture and industry are in terms of production value.

Concerning Astana, there is other information indicating the industrial sector's target growth rates as follows: 3.0% (2000), 4.0% (2001), 6.0% (2002), 7.0% (2003), 8.0% (2004 and 2005). The average annual growth rate is 6.0% per year between 2000 and 2005.

In either of the above cases, a high growth rate is assumed for the industrial sector in Astana, presumably considering the rapid urban expansion in Astana foreseen in the next five years. The industrial growth rates assumed for Kazakhstan and Karaganda are in a similar range, while that of Akmola Province is about half. The agriculture growth rates of Akmola Province and Karaganda Province are close, both higher than the national target.

(4) "Blooming of Astana is Blooming of Kazakhstan"

"Blooming of Astana is Blooming of Kazakhstan" was prepared by Ministry of Economy and Institute of Economic Studies in 2000, following the prime minister's order. It presents the major policy directions concerning the development of Astana until the year 2005. The following gives a summary

- a. Astana will pursue "Government and Business City" rather than "Government, Business and Industrial City".
- b. Astana would encompass legislative and executive authorities, embassy city, business structures, other state bodies, business and commercial entities and local-market based industries.
- c. Economy-wise, priority is given to the service sector including transportation, communication, engineering services etc. Priority in the industrial sector is the modernization of production technology and application of information technology (IT).
- d. Human resources development is to be emphasized for information technology, microelectronics and biotechnology.

- e. Those industries targeting markets outside Astana or environmentally harmful need to be closed, transformed or relocated.
- f. Research and development activities will be strengthened in the fields of import substitution industries, energy saving technology, bio- and genetic engineering, telecommunication and information technology, advanced machinery and equipment and new material development.
- g. "Center for Information Technology and Application" will be established to develop IT-related private activities and promote application of advanced IT technology to industrial production process.
- h. Development of tourist destinations of various kinds in the vicinity of Astana would be promoted.
- i. International cooperation would be required to promote agriculture development in the surrounding area of Astana to ensure year-round food supply.
- j. A range of production growth targets is estimated as follows.
 - Industry: not less than 17.5 % per year
 - Service: 15 to 20% per year
- k. A number of national and inter-regional infrastructure projects regarded as important for the economic growth of Astana and Kazakhstan as follows.
 - Yesil-Arkalyk-Zhezkazgan-Kyzylorda railway connection to bypass Astana
 - Renovation and upgrading of Astana-Almaty railway (15 billion Tenge)
 - Establishment of direct railway lines from Astana to Semipalatinsk, Ust-Kamenogorsk, Kyzylorda, Atyrau and Aktau
 - Upgrading of Almaty-Karaganda-Astana-Schuchinsk-Kokshetau Highway with improvement of access to Baraboe
 - Astana Ring Road to divert traffic to/from Karaganda, Kosatanai, Pavlodar and Petropavlovsk.
 - Gas pipeline connecting Karachaganak – Orenburg – Arkalyk – Aktybinsk – Astana.
 - Telecommunication line connecting Almaty – Karaganda – Astana – Kokshetau – Petropavlovsk - Omsk
 - Widening of Irtysh-Karaganda canal
 - Irtysh-Karaganda-Ishim canal

- l. Investment cost needed for constructing new Astana is estimated to be in the range of 200 to 250 billion Tenge by the year 2005.
- m. Social development is essential in order to improve the living standard of the population in the fields of public health, science and education and physical training and sport.

10.4.2 Objective and Regional Development Strategies Proposed for AAKR

(1) Objective

The objective of regional development in AAKR is to promote economic growth so as to raise the living standard of the population in an environmentally sustainable manner

(2) Regional Development Strategies

The following three regional development strategies are proposed

- a) Promotion of economic development under appropriate division of functions
- b) Development of a spatial structure, which is more balanced and with easier access to other regions
- c) Creation of an appropriate institutional set-up instrumental in promoting a balanced economic development of AAKR

Promotion of Economic Development under Appropriate Division of Functions

The AAKR's economy could be developed most effectively by taking full advantage of the strengths of each region. AAKR should aim at growing into a leading and model area for other regions in Kazakhstan. The following basic division of functions among the subject areas is proposed.

1) Astana

- Political/administrative center
- Business and commercial center at an international level
- Leading research and development (R/D) center of advanced technologies in Kazakhstan such as information technology and environmental science

2) Akmola Province

- Leading agriculture area in Kazakhstan, expanding the production of the

- existing crops and introducing new crops
 - Agro-processing industry based on its rich agriculture potential and taking advantage of its proximity to Russia and China, potential big markets
 - Comprehensive agronomic center with strong distribution function with such facilities as depots and transshipment terminals
 - Tourism development area capitalizing on its rich environmental resource
 - Research and development (R/D) on farming and bio-technology
- 3) Karaganda Province
- Center for processing industry in Kazakhstan and CIS
 - Research and development on advanced industrial technology, with an emphasis on application to production
 - Center for human resource development in industrial technology for Kazakhstan and CIS countries

Development of a Balanced Spatial Structure

The spatial structure of AAKR needs to be strengthened in order for AAKR to effectively play a leading role as the advanced technology, administrative and business/commercial center of Kazakhstan. Two points of view, macroscopic and regional, relating to the development of the surrounding rural area are taken into consideration.

From a macroscopic perspective, AAKR's access to and from other regions of Kazakhstan needs to be improved. Figure 10.4.1 shows a concept of access improvement for AAKR. Improved access from AAKR to the Caspian region would open a new direct route to the Caucasian countries and further to the European countries through the Caspian Sea route. Improved access to the southwestern direction would benefit the depressed rural area of Karaganda Province as well as ensuring smoother traffic flow from the southern part of Kazakhstan such as agriculture commodities produced in the south. Access to the east, mineral resources producing area, through such cities as Semipalatinsk and Ustkamenogorsk, would accelerate an exchange of commodities and technology as well as adding a new trade route to China on top of the Aktogai-Dostyk route currently being upgraded.

An improvement of the AAKR's spatial structure from the regional perspective would comprise the strengthening of the existing two axes in AAKR, north-east and east-west and enhancing the function of the secondary

cities in AAKR. The north-south axis running from Almaty all the way up to Kokshetau through Karaganda City and Astana is being upgraded by the rehabilitation work of the republican road. Upgrading of the railroad and telecommunication lines along this axis is yet to be initiated. The east-west axis from Kostanai to Pavlodar through Astana would require an improvement from the viewpoint of balanced economic growth.

Secondary cities would play an important role in receiving rural population and providing various urban services to the hinterland. It is possible that the larger cities such as Astana, Karaganda and Kokshetau may be flooded with in-migrating population seeking jobs in the event that no improvement in living condition takes place in the rural area. The secondary cities with the reinforced urban functions could intercept these emigrating rural people, leading to a balanced growth of first order cities and lower order cities

Creation of an Appropriate Institutional Set-up

Success in the implementation of a regional development plan hinges upon the readiness on the part of the Kazakhstan government in carrying out the proposed plan in a comprehensive manner and with a regional perspective. So far much attention has been paid to the development of Astana alone, but with lesser attention to the surrounding areas. Consequently no sufficient coordination seems to be made among the related organizations in planning and implementing measures for the area-wise development. Astana's growth is possible only with the development of the neighboring provinces. To effectively plan and realize the development of AAKR, an appropriate institutional set-up would be needed, involving central policy and line government organizations as well as provincial governments.

(3) Sectoral Development Strategies

Table 10.4.1 gives an idea on the directions for industrial development for Astana, focusing mainly on the existing types of industries. Most of the industries mentioned here could benefit from the expanding market of Astana, if the production capacities are accordingly expanded. The first priority would be to fulfill the expanding demand in Astana and AAKR as a whole by local products. This is an import-substitution strategy. For certain products already domestically or internationally competitive, upgrading the quality of product would be needed to expand export to CIS countries, or even to non-CIS countries. This is an export-promotion strategy to be promoted either following or in parallel with import substitution stage.

It is recommended that a detailed analysis be carried out to work out a set of sectoral strategies for agriculture, industry and service sectors in AAKR based on the regional development strategy presented already.

10.5 Measures and Projects Proposed for AAKR

10.5.1 Projects Ongoing and Planned by the Kazakhstan Government

Data were collected on the projects prepared either by the republican government or city/provincial governments, which are ongoing or planned in Astana City, Akmola Province and Karaganda Province. There are altogether 80 such projects in AAKR, comprising 27 projects in Astana City, 35 projects in Akmola Province and 18 projects in Karaganda Province. The projects and measures proposed for AAKR in Sub-section 10.5.2 incorporates some of the concepts presented in these ongoing and planned projects.

10.5.2 Development Programs Proposed for AAKR

A set of measures and programs are proposed to accelerate economic growth in AAKR. They are worked out at a conceptual level based on an analysis of the present condition, problems, the development strategies for AAKR and the ongoing and planned projects presented in Sub-section 10.5.1. They include an institutional measure, seven area development programs (ADP) and two sector development programs (SDP) as follows. ADPs are to be implemented for specific regions, while SDPs are applicable to all regions. They are mutually supportive.

(1) Establishment of AAKR Regional Development Committee

Area Development Programs (ADP)

- (1) Eurasian IT Oasis Program
- (2) Greater Astana Integrated Agriculture Development Program
- (3) Akmola Agro-processing Corridor Program
- (4) Karaganda Processing Industry Revitalization Program
- (5) Akmola , Karaganda and Pavlodar Tourism Development Program
- (6) Integrated Urban Infrastructure Development Program (IUIDP)
- (7) Research and Development Center Program

Sector Development Program (SDP)

- (8) Comprehensive Enterprise Support Program
- (9) Technology Education Pilot Scheme

The objective of establishing the AAKR Regional Development Committee is for

those organizations concerned with the AAKR development to discuss AAKR's development issues, work out strategies for development and implement them on common ground. Relevant organizations would include Astana City, Akmola Province, Karaganda Province and republican organizations, both policy agencies such as Ministry of Economy and line agencies responsible for each relevant sector. It is proposed that representatives of these relevant organizations existing at present meet, on a regular basis, to discuss the AAKR's development issues. Creation of a new organization for this purpose is not recommended. The AAKR Regional Development Committee would enable the organizations concerned to coordinate and integrate projects and measures to maximize the benefit generated by each project.

Table 10.5.1 presents an outline of the proposed seven ADPs and two SDPs. Figure 10.5.1 shows their locations. Eurasian IT Oasis Program aims to apply advanced information technology (IT) to regional development of AAKR through developing telecommunication networks and supporting IT industries by incubation service. This program would ensure an increased and smoother exchange of technical and market information for industries, farmers and companies to upgrade productivity. A country like Kazakhstan, characterized by a vast land area and long distance among cities, can benefit most from IT application. Thus, Astana is proposed to grow into the IT center for Kazakhstan and CIS countries. Human resources development in IT would be the prerequisite in pursuing this direction. It would be effective to hold an international seminar on IT as an initial step to publicize the importance of IT for the economic development of Kazakhstan.

Greater Astana Integrated Agriculture Development Program supports agriculture production in three districts in Akmola Province, Arshanlysky, Tselinogradsky and Shortandynsky and one district in Karaganda Province, Osakarovsky district in the vicinity of Astana. "Greater Astana" here indicates the areas surrounding Astana City. The aim of the program is to increase food supply capability of this area to meet growing demand in Astana. Irrigation farming, greenhouse farming and livestock are to be supported. Promotion of *dacha* farming and small scale farm mechanization will be sought.

Akmola Agro-Processing Corridor Program will turn the north-south Astana-Kokshetau corridor and Erimentau-Astana-Esyl east-west corridor into major agro-processing corridors based on the rich agriculture growth potential of Akmola Province. Investment environment of the major secondary cities along these corridors will be improved through infrastructure development, technical and

support measures and investment incentives. Access with the hinterland will also be improved.

Karaganda Processing Industry Revitalization Program would support restoration and growth of metallurgy industries and processing industries in Karaganda City and Temirtau City by technical and financial support. This area could develop into a major processing industry center in CIS. Industrial Human Resource Center would train factory workers and managers from Karaganda Province, other part of Kazakhstan and CIS on technical and managerial issues. Application of "Cleaner Production" technology, which is the technology generating minimum pollution load, is proposed with the involvement of the United Nations Environmental Program initiative.

Akmola, Karaganda and Pavlodar Tourism Development Program would start with the preparation of a tourism development master plan for the tourism areas in three Provinces; Akmola, Karaganda and Pavlodar of which potential regions for tourism development are shown in the Figure 10.5.2. The Program outline of which is given in the Table 10.5.1 is aimed at the enhancement of the tourism potential through improvement of accessibility and on-site infrastructure in environmentally sustainable manner. Promotion of nature-oriented tourism along with the revival of national traditions is proposed. An increased and upgrading of receiving capacity of such tourism and recreational areas as "Burabai" Historical-Cultural and Health Rehabilitation Center, Kokshetau National Park, Korgaldjy Preservation Area containing Tengiz lake in Akmola Province as well as "Bayanaul" National Park in Pavlodar Province and Karkaraly National Park and "Ulytau" outdoor National Museum in Karaganda Province will benefit urban residents in Astana and relevant cities and towns as well as international tourists.

Accessibility from Astana to the above tourism site, particularly, Baraboe, needs to be improved. In order to improve the rail transport between Baraboe and Astana which takes about 3 hours by local train now, introduction of express train services is indispensable. This will not only improve the accessibility for tourists, but also commuters from Kokshetau and Shuchinsk to and from Astana, which could be extended to Karaganda.

Integrated Urban Infrastructure Development Program (IUIDP) would improve the urban environment of the major two cities in AAKR, Kokshetau City and Karaganda City (including Temirtau City) and 20 secondary cities in AAKR. The designated function of Kokshetau City and Karaganda City would be fulfilled with an improved urban environment. IUIDP would be conducive to strengthening the

urban functions of the secondary cities, which is important in offering job opportunities and better living environment to the rural population. A unique component of IUIDP is the provision of IT infrastructure and services such as public access terminal where residents can use computers to acquire and disseminate various kinds of information. Telecommunication system will be improved for this purpose.

Research and Development Center Program would enhance the AAKR's leading role in Kazakhstan in spearheading advanced technology development and application to productivity increase. RD centers are to be established in the fields of information technology and environmental science in Astana, farming and bio-technology in Kokshetau and advanced industrial technology in Karaganda.

Comprehensive Enterprise Support Program is to be applied to economic entities in agriculture, industry and service of all scales in AAKR. This program is not area-specific, applicable to all the areas in AAKR. Financial support would be provided in the form of a loan with favorable conditions. Technical support will be provided through enhanced extension service for farmers and advisory and consultative service for factories. Managerial support is to be provided especially for small and medium enterprises with low managerial capability. IT will be fully utilized.

Technology Education Pilot Scheme is an SDP on a pilot basis proposed in Astana. The basic subjects for technology would be increased such as mathematics, science, information technology and English language.

TABLE

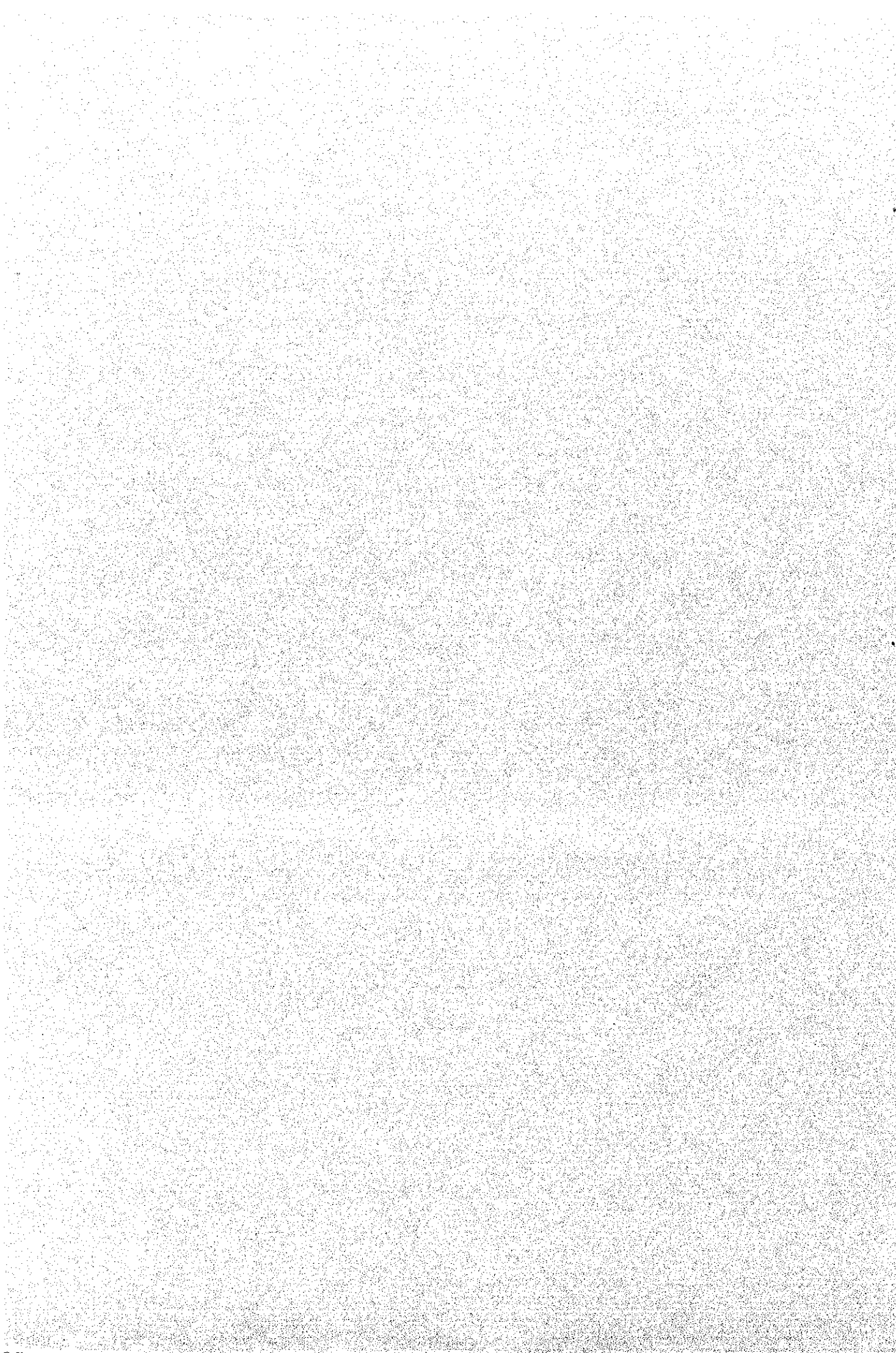


Table 10.2.1 Major and Secondary Cities in AAKR and Their Functions

Cities	Distance from Astana (km) 1)	Population in 1999 (thousand)	Major Function				Political/ administrative 3)
			Economic				
			Mining	Manufacturing	Commerce /service	Tourism	
Astana	0	320.0		x	x		xxx
Astana-Kokshetau Corridor							
Shortandy	65	7.2			x		x
Akkol	96	15.7			x		x
Makinsk	175	18.5			x		x
Shuchinsk	210	45.3			x	x	x
Kokshetau	270	123.4		x	x		xx
Zerenda	246	4.7			x		x
Balkashino	237	5.7			x		x
Stepnogorsk	133	47.4	x	x	x		x
Stepnyak	188	5.1			x		x
Astana-Karaganda Corridor							
Arshaly	61	7.1			x		x
Osakarovka 2)	107	7.9			x		x
Temirtau 2)	165	168.6		x	x		x
Karaganda 2)	190	435.5	x	x	x		xx
Kievka 2)	102	6.7		x	x		x
Astana-West corridor	-	-	-	-	-	-	-
Atbasar	225	32.3			x		x
Zhaksy	295	5.4			x		x
Esyl	358	13.1			x		x
Egindykol	138	3.5			x		x
Astrohanka	120	6.6			x		x
Derzhavinsk	357	7.9			x		x
Korgalgyn	120	5.7			x		x
Astana - East Corridor							
Ereymantau	130	15.1			x		x

1) Straight distance

2) Cities/towns in Karaganda Province. Cities/towns with no mark are all in Akmola Province. The cities in Karaganda Province included in this table are those located in the northern part of the province.

3) xxx: national capital, xx: provincial capital, x: district center

Table 10.4.1 Industrial Development Strategy for Astana City (Tentative)

Type of Industry	Existing Condition								Strategy			Remarks	
	a. Existing	b. Existed before	c. Raw materials available	d. Growing	e. Priority type	f. Export competitive ness of Kazakh. Product	International Trade		To meet market expansion	International Trade			Overall
							h. Imported to Astana	g. Exported from Astana		Import substitution	Export promotion		
Food	yes	yes	yes	yes *	yes	competitive (vegetable products)	meat/dairy products/vegetable oil	meat/flour/sa usage/butter	all	yes (meat/dairy products/vegetable oil)	Increase export both to CIS/non-CIS countries	(1) Process raw products before export. (2) Upgrade quality to expand export to non-CIS.	Agro-processing industry accounts for 2.9% of nation.
Beverage/forage/tobacco	yes	yes	yes	no **	no	no	no	no	all	yes (beverage)	no	Utilize non-used groundwater resource in Akmola Province.	Good quality groundwater of $50 \times 10^3 \text{ m}^3/\text{day}$ (100 million 500ml cans) available in
Textile	no	wool *	limited	-	yes	no	no	-	yes	yes (wool)	no	Revive wool production in Astana. Raw wool to be collected from Almatyskaya, Zambyl, Karaganda, Kzyl-Orda, South Kazakhstan and process in Astana.	Wool production in Akmola Province in 1998 at 423 tons: 9.4% of Kazakh production at 4.5×10^3 tons.
Apparel/other textile products	yes	yes	no	no**	yes	some	no	no	all	yes	yes	Shift to more sophisticated types of	Now producing mainly uniforms.
Wood/wood product	yes	yes	no	yes *	no	yes	particle board/Wood fiber product	no	all	yes (particle board/Wood fiber product)	no	(1) Remain dependent on Akmola northern area for raw wood. (2) Expand construction-related products.	Wood production in Akmola P. in 1997 at $9.2 \times 10^3 \text{ m}^3$ in 1997: 5.1% of nation at $181.4 \times 10^3 \text{ m}^3$.
Furniture etc.	yes	yes	no	yes **	yes	no	no	no	all	yes	later	Upgrade quality to international standard.	
Pulp/paper/paper products	yes	yes	no	no*	yes	no	no	no	all	yes	no	Upgrade quality to meet administrative/business demand.	Astana's share in nation in value added generation at 4.1%, including publishing.
Publishing/printing	yes	yes	yes	yes **	no	no	no	no	all	yes	yes	(1) Meet administrative/business demand (2) Aim at Central Asia's intellectual center through publication of R/D outputs.	
Chemical products	yes	yes	no	no**	yes	no	medicine	no	all	yes (medicine)	no	(1) Expand existing industries to meet construction demand. (2) Promote biotechnology R/D in relation with agro-processing industries/agriculture.	(Example) R/D on medicine/cold-resistant crops.
Petrochemical/coal related	no	no	no	-	no	no	no	no	-	-	-	No development	
Plastic products	yes	yes	no	yes **	no	no	no	no	all	yes (tire)	no	Demand in all spheres.	Construction, agro-processing, agriculture etc.
Rubber products	yes	yes	no	yes **	no	no	no	no	all	yes (tire)	no	Demand in all spheres.	
Tanned leather/products/fur/fur product	no	no	yes	-	yes	raw hides	no	no	all	yes	yes	(1) Promote development in parallel with livestock development. (2) Export leather after processing to get higher value added.	
Ceramics	yes	yes	yes (brick clay)	no **	yes	no	bricks	no	all	yes (bricks)	no	(1) Expand production to meet construction demand. (2) Better utilize clay widely available around Astana for brick	Need a survey to clarify the amount of clay available.
Ferrous metallurgy	no	no	no	-	yes	no	no	no	no	no need	no	Keep dependent on Karaganda.	
Non-ferrous metallurgy	no	no	no	-	yes	no	no	no	no	no need	no		
Metal products	yes	yes	no	no**	yes	no	no	Copper/aluminum products	all	yes	yes	(1) Keep dependent on Karaganda for raw material. (2) Promote production to meet construction demand.	
Machinery	yes	yes	no	no **	yes	yes	no	Agriculture machinery/pumps/locomotives/cranes	all	yes	yes	(1) Promote production of agri. machines in parallel with agriculture development. (2) Improve quality to penetrate into non-CIS market	Agri. machine production in Astana accounted for 57% of nation in 1997 in production value
Electronic equipment	yes	yes	no	no **	yes	no	no	no	some	yes	no	(1) Expand existing lamps/lighting production to meet construction demand. (2) Select competitive types and promote.	Accounted for 1.8% of nation in 1998.
Transport machine	yes	yes	no	no **	yes	no	no	used cars	some	no need	no	(1) Expand parts production/maintenance service.	
Precision equipment	no	no	no	-	no	no	no	no	-	-	-	-	
Ammunition	no	no	no	-	no	no	no	no	-	-	-	-	

Note: Industries are classified according to Japanese standard.

a: Currently existing in Astana, b: Once existed in Astana, c: Raw materials are easily obtainable from surrounding area, d: Recently growing, * comparison between 1993 and 1997, ** between 1997-99 in constant price or volume

e: Currently exported from Astana, f: Currently imported to Astana, g: Currently exported from Astana

Table 10.5.1 (1/2) Outline of Programs Proposed for AAKR

Program	Component	Outline
1. Eurasian IT Oasis	Establishment of IT center in Astana Incubation service for IT industries Telecommunications network development Reinforcement of technical library Rural communication network expansion and public access terminal installment Multimedia University Smart school plan	The basic idea is to create an environment in AAKR in which information technology (IT) can be fully applied to regional development of AAKR. As old day oasis provided water for travelers, today's oasis provides an opportunity for free information exchange. Astana will grow into an IT center for Kazakhstan or even CIS countries. There are two major components to prepare foundation for IT promotion, telecommunication network building and promotion of IT industries by incubation service. IT application includes rural development by connecting Astan's IT center and rural area for information exchange on agriculture produce market, reinforcement of technology library in Astana and Karaganda utilizing IT etc. Public access terminals will be installed in secondary cities where farmers can use computers. Human resources development as the prerequisite includes Multi-media University, either establishing a new institute or upgrading the existing institute and smart school plan by which IT education is enhanced at primary and secondary school level.
2. Greater Astana Integrated Agriculture Development Program	Provision of technical and financial support Irrigation facilities rehabilitation Promotion of greenhouse farming and livestock	Astana is currently dependent on supply of some food stuff from other regions, especially southern part of Kazakhstan. As the Astana's population grows to the forecast 800,00 by the year 2030, the food shortage will increase as shown in Table???. To solve this problem, four districts, three in Akmola Province and one in Karaganda Province, in the vicinity of Astana are selected as promoting agriculture production increase for meeting growing food demand in Astana. The selected areas are Arshanlysky, Tselinogradsky and Shortandinsky districts in Akmola Province and Osakarovsky district in Karaganda Province. Osakarovsky district borders Akmola Province in the north and encompasses most part of the Karaganda portion of the Irtysh-Karaganda Canal, providing a high potential for irrigation farming
3. Akmola Agro-Processing Corridors Program	Rehabilitation of republican road P9 from Astana to Kokshetau and east-west artery running from Erimentau to Esyl through Astana Improvement of rural road network in the hinterland Improvement of urban infrastructures of key secondary cities Provision of technical and financial support and incentive measures for agro-processing industries	The objective is to improve the investment environment of these corridors targeting at agro-processing industries capitalizing on the area's high agriculture potential. Access will be improved along the north-south and east-west arteries as well as rural roads in the hinterland to ensure smoother flow of traffic between farm area and the processing sites. Urban infrastructure of the key secondary cities such as Schuchinsk, Makinsk, Akkol, Atbasar, Esyl and Erimentau are to be rehabilitated and upgraded. Also software aspect of the investment environment such as investment privileges and financial/technical support will be provided. The products could initially serve AAKR, followed later by an increase in export to CIS and western and Asian countries.
4. Karaganda Processing Industry Revitalization Program	Provision of financial and technical support and investment privileges to processing industry Improvement and upgrading of urban infrastructure Establishment of Industrial "Human Resource Development Center" Promotion of "Cleaner Production" technology	The objective is to revitalize and accelerate the growth of ferrous- and non-ferrous metallurgy and other processing industries in Karaganda and Temirtau City so that these cities will grow into a major processing industry center in CIS. Investment environment will be improved by infrastructure upgrading and software measures such as investment privileges and financial and technical support. Industrial Human Resource Development Center will provide training to participants from Karaganda Province, other part of Kazakhstan and CIS countries on advanced industrial technology and managerial subjects. "Cleaner Production" technology will be promoted with support by United Nations Environmental Program (UNEP) initiative. "Cleaner Production" technology replaces environmentally undesirable manufacturing process with a new technology generating minimum pollution.

Table 10.5.1 (2/2) Outline of Programs Proposed for AAKR

Program	Component	Outline
5. Akmola Tourism Development Program	Master plan preparation Access improvement Improvement/expansion of on-site infrastructures Investment promotion incentives Establishment of Tourism Human Resources Center	The objective is to develop the existing tourist potential areas in Akmola Province so that they could provide an increased recreational opportunity for urban residents in AAKR and international tourists. Three areas in Akmola Province are selected: Korgalginsky Preservation Area containing the Lake Tengis, Baraboe National Park and Kokshetau National Park.. Basic direction would be eco-tourism for Korgalginsky Preservation Area and eco-tourism plus other types of nature-oriented activities for the two national parks. A master plan will be prepared before the initiation of development measures, including zoning, forecast of guest arrivals, preparation of infrastructure development plan and investment promotion measures. A tourism human resource development center will be established to train tourism industry personnel.
6. Integrated Urban Infrastructure Development Program (IUIDP)	Rehabilitation and upgrading of urban infrastructures in Kokshetau City, Karaganda/Temirtau City and 20 secondary cities in AAKR	The objective is to rehabilitate and upgrade the urban infrastructure facilities of the major and secondary cities in AAKR to improve the living standard of the population and the investment environment. The designated functions of Kokshetau City (agro-processing and R/D on farming and bio-technology) and Karaganda/Temirtau City (processing industry center) will be fulfilled with an upgraded urban environment. The secondary cities would play an increasingly important role in providing job opportunities and better living standard for the rural population. All kinds of infrastructure are covered such as water supply, sewerage, solid waste management, power and heat supply, road and telecommunication. A unique characteristics of this IUIDP approach is its emphasis on IT application, by which public access terminals (PAT) be installed together with telecommunication line reinforcement. Local residents will be able to use computers at PATs for acquiring various information from larger cities such as crop market information, new farming technology information disseminated by IT center in Astana, or weather forecast information.
7. Research and Development (R/D) Center Program	R/D center on IT and environmental science in R/D center on farming/bio-technology in Kokshetau R/D center on industrial technology in Karaganda Telecommunications network development	These R/D centers would spearhead application of advanced technology to various spheres of Kazakhstan's economic activities. Telecommunications networks will be developed to link these R/D centers and other R/D institutes so as to promote sharing of R/D fruits and disseminating findings to factories and farmers through strengthened extension service.
8. Comprehensive Enterprise Support Program	Technical support to farming, industry and service enterprises Financial support to farming, industry and service enterprises Managerial support to farming, industry and service enterprises	This is a sector program applicable to any area in AAKR. A comprehensive package of support measures will be provided to enterprises and individuals in agriculture, industry and service sectors and of small to large scale. Technical support will be provided by strengthened agriculture extension service and advisory and consultation service for factories fully utilizing the functions of Industrial Human Resource Development Center and Advanced Industrial Technology Center proposed in Karaganda City. Managerial support will be provided especially to small enterprises with low managerial capability. All these functions will be enhanced by full application of telecommunication and IT technology.
9. Introduction of Technology Education Program	Introduction of technological subjects to school curricula	This is a pilot scheme to be implemented in Astana, introducing new types of education programs at primary and secondary school level. Technology related subjects such as mathematics, science, information technology and English language are to be introduced or expanded.

FIGURE

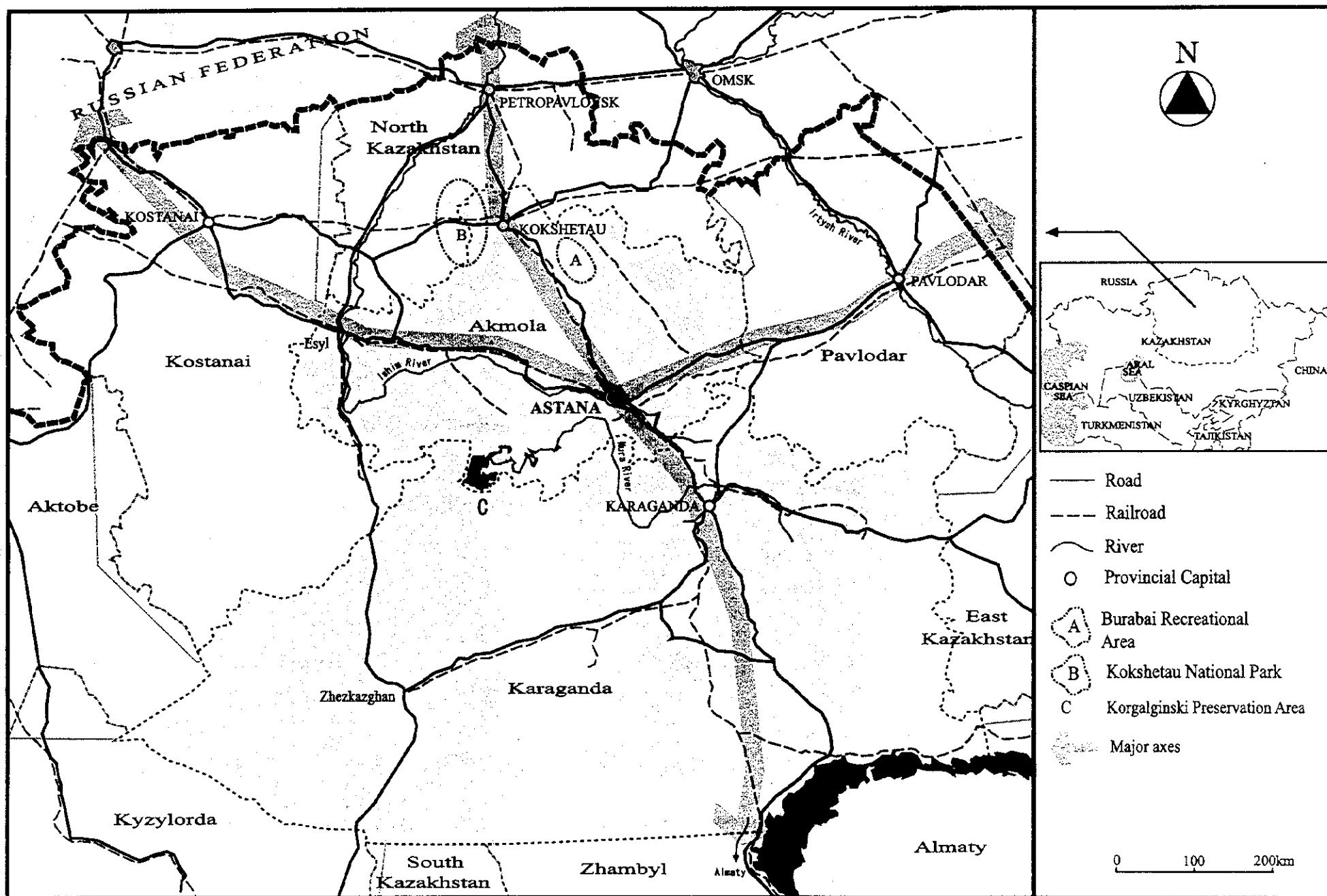


Figure 10.2.1 Astana and Surrounding Provinces

Figure 10.2.2 Urban Hierarchy and Transport Network in AAKR

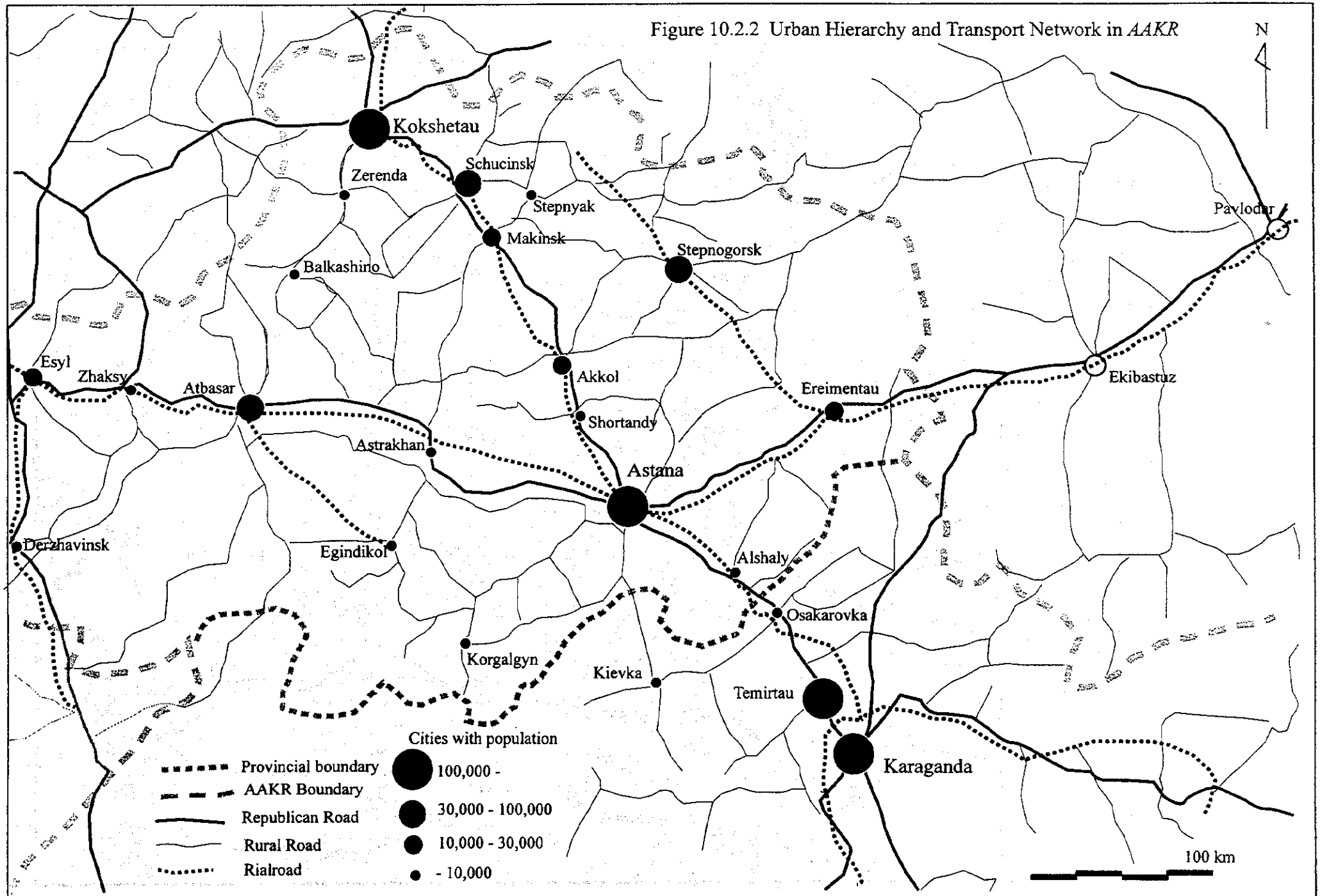


Figure 10.2.3 Problem Structure of Industrial/Service Sector

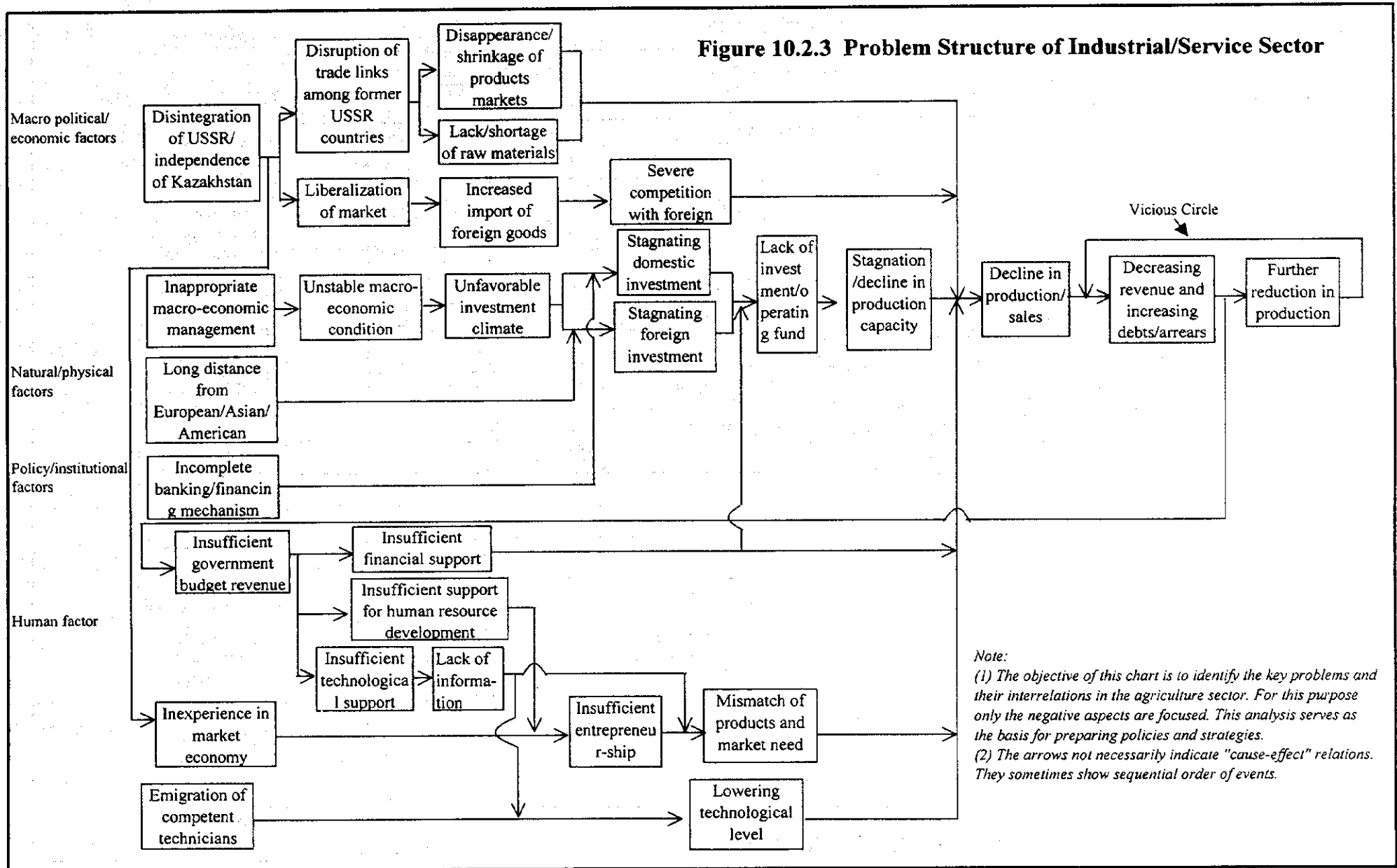
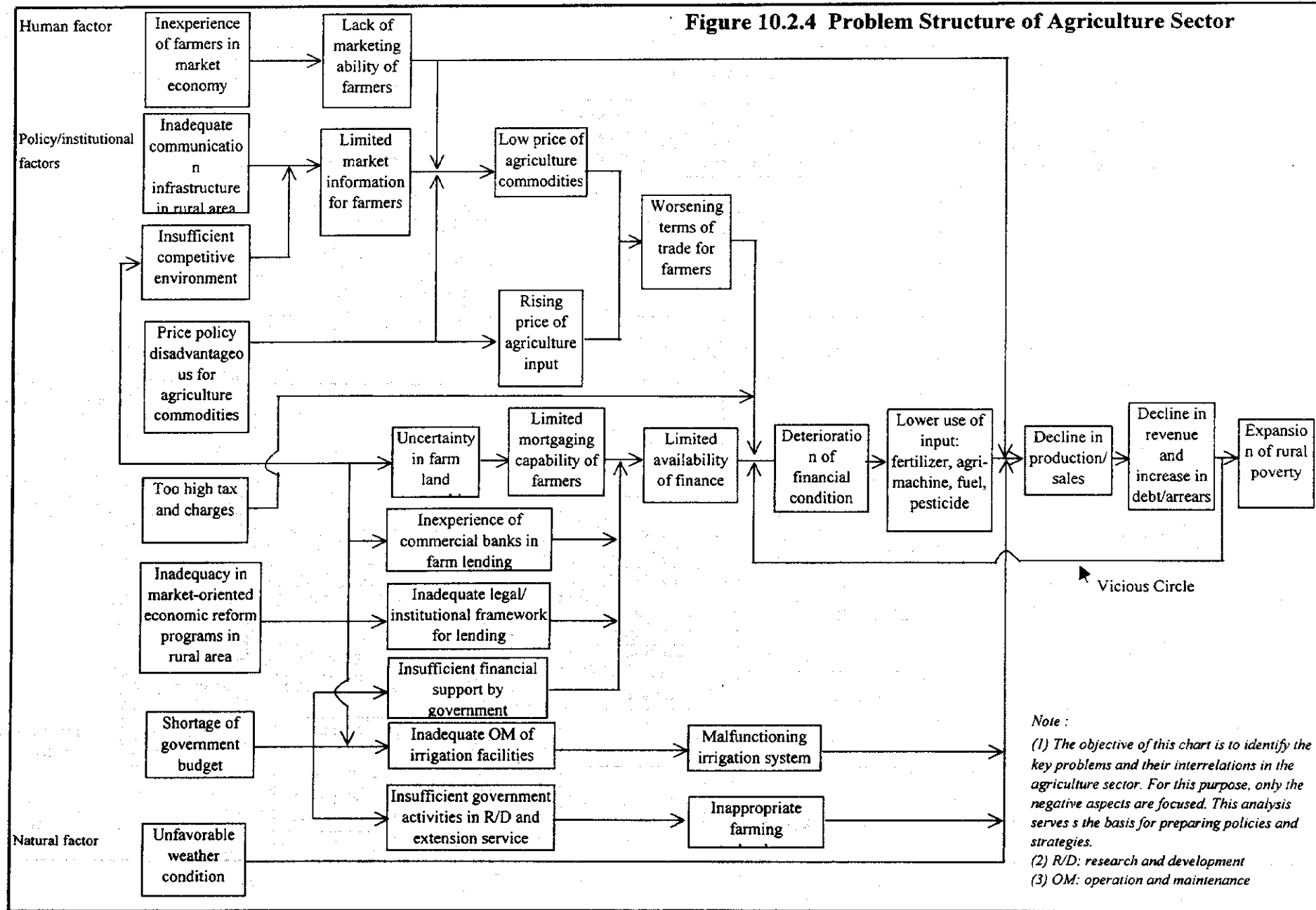
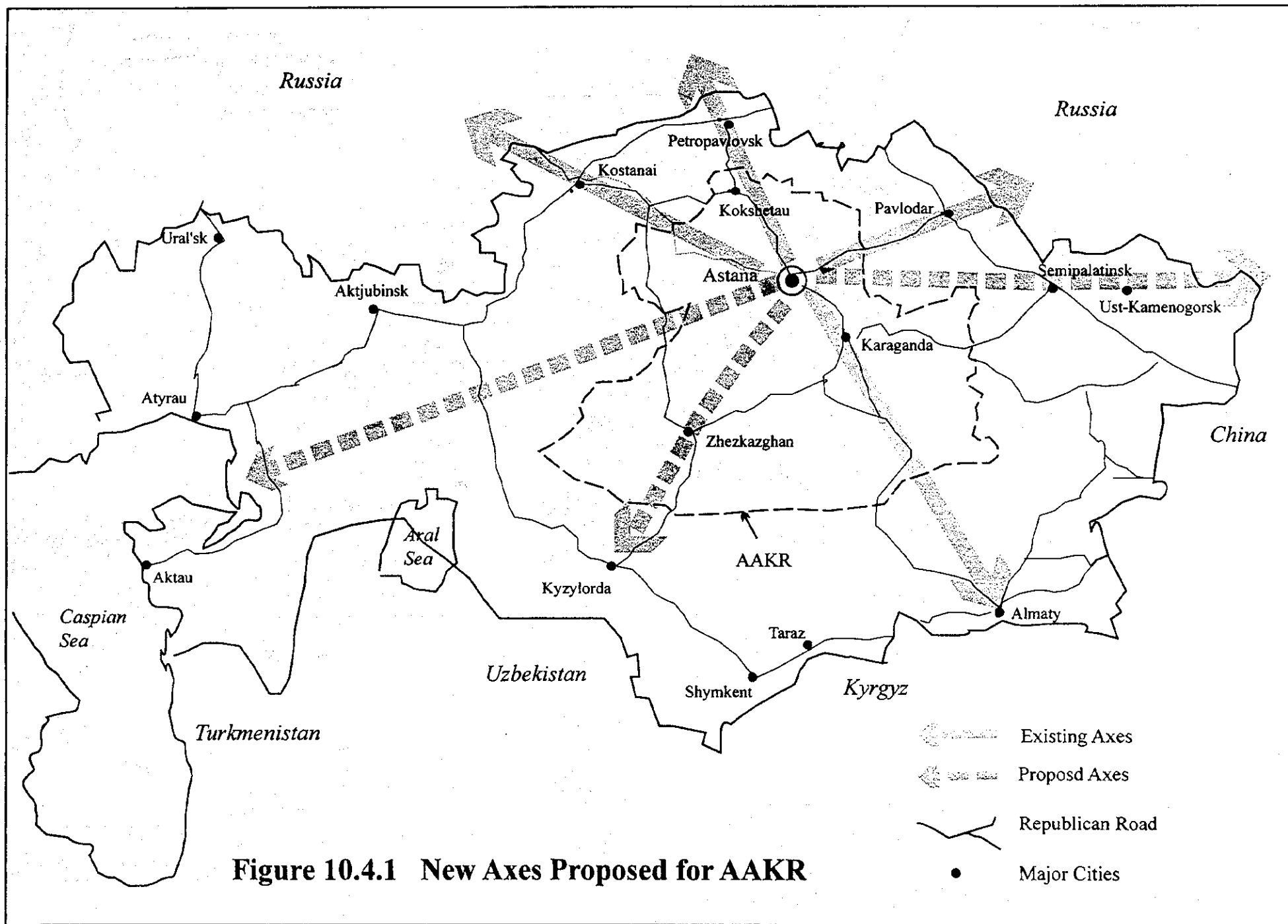
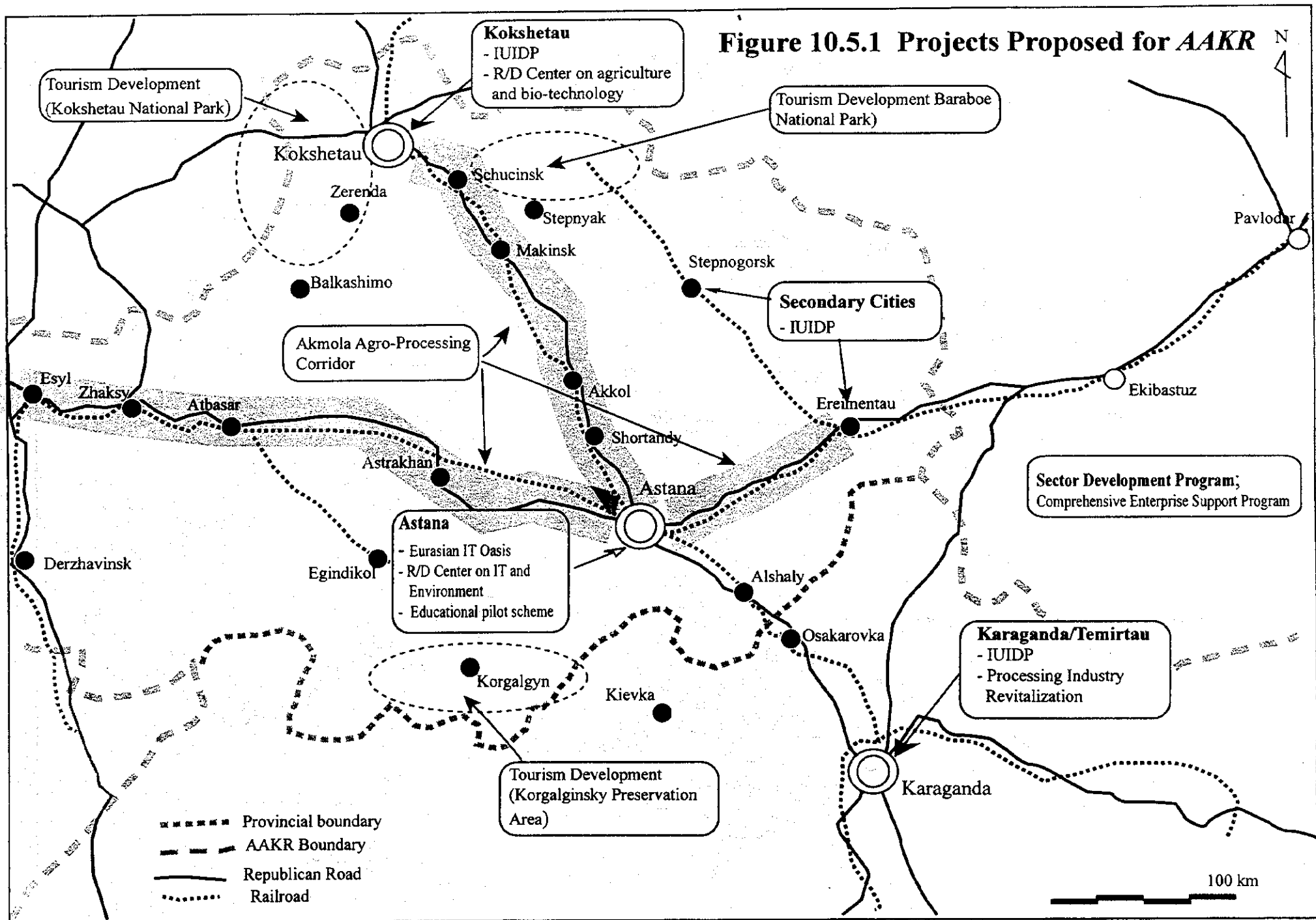


Figure 10.2.4 Problem Structure of Agriculture Sector







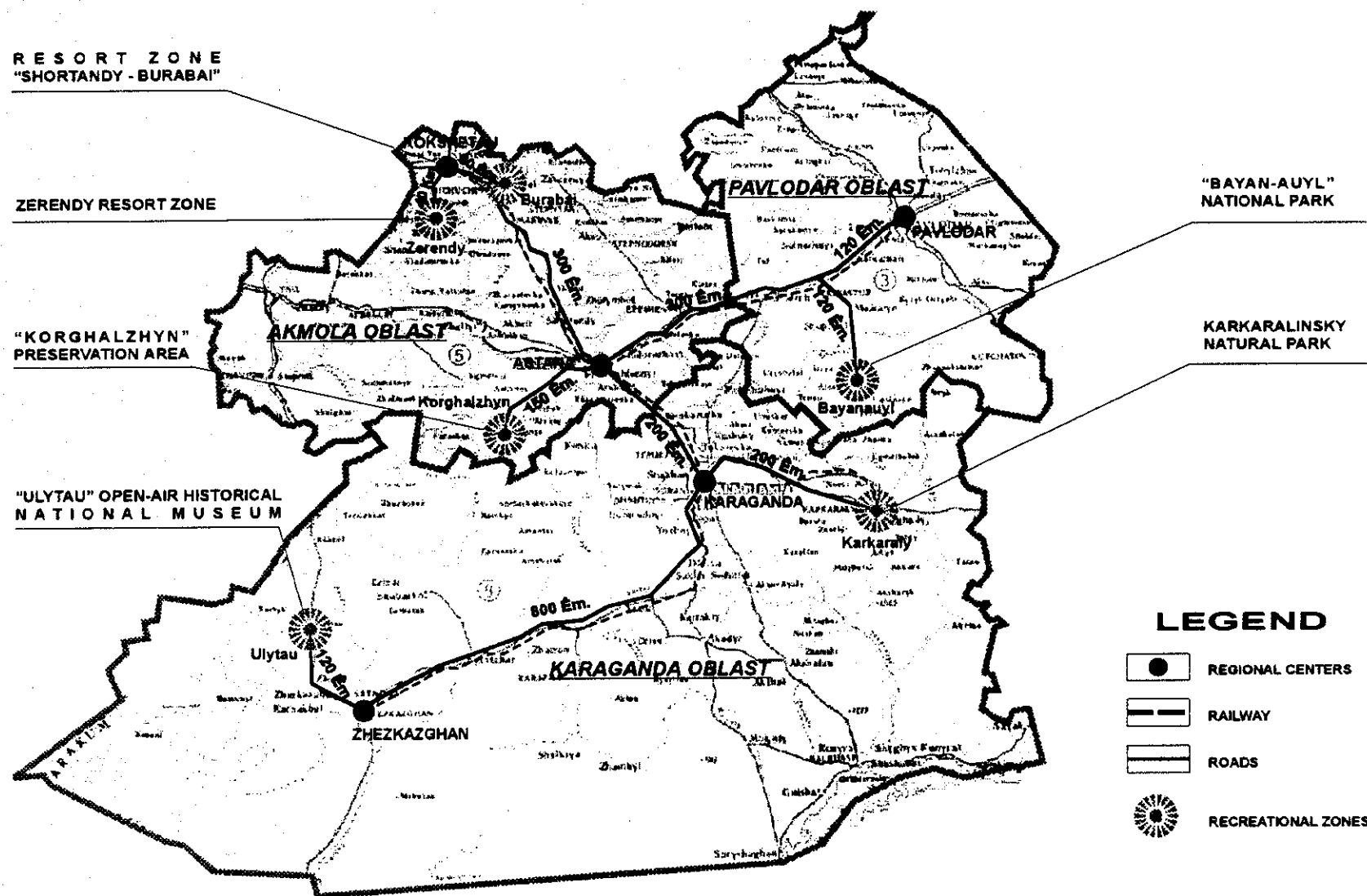


FIGURE 10.5.2 LAYOUT OF MAJOR RECREATIONAL ZONES

CHAPTER 11

CONCLUSIONS AND RECOMMENDATIONS

CHAPTER 11 CONCLUSIONS AND RECOMMENDATIONS

The desire to see and learn something comes from a natural instinct, too, but intelligence and learning are gained through work. By hearing with his ears, beholding with his eyes, touching things with his hands, tasting with his tongue and inhaling through his nose, man gets an idea of the surrounding world.

Abai, Kazakhstani Poet (1845 – 1904) <Word Forty-three>.¹

11.1 Conclusions

11.1.1 Significance of Capital Development

The capital city differs from ordinary cities in the sense that no nation could be indifferent to its location, status and development. This peculiarity is one of the major sources of difficulty and significance of formulating a master plan for the capital. Conscious or unconscious, the master plan of the capital city shall inevitably affect the course of the nation's future path substantially. This nature of the master plan of a capital needs to be understood clearly.

The image of a nation almost always accrues from the image of its capital; United Kingdom from London, France from Paris and Russia from Moscow. In conjunction with this, planning of the capital relates to the planning of the future image of the nation. Sooner or later, Astana will be associated as the representative image of RK.

Thus the capital has an inherent inseparability from the nation which it represents. This is the major reason that a number of new nations seek to establish a new capital. Germany, for instance, the decision of transferring its capital from its former provisional capital of Bonn to Berlin in 1991, one year after its integration. Construction of the new capital, Berlin, is now in full swing in parallel with the on-going integration of the nation.

The United States of America established its new capital, Washington D.C. based on the then newly enacted Constitution in 1790; 12 years after its independence. Washington D.C. today is not only the political center of the nation, but also a regional commercial and business center located in the *megapolis* on the east coast of America.

It was in 1997, or 6 years after its independence, that RK officially transferred its capital from the former Almaty to Astana. (Refer to Section 1.1) This move shocked even the Kazakhstani nationals and apparently outraged some of the

¹ Quotation from "Abai – Book of Words", EL Bureau, Almaty, 1995, translated by David Aitkyn.

donors to RK. In light of the foregoing conception that a new nation needs a new capital, however, the motivation for the move is quite straightforward and understandable.

The last decade was not an easy one for RK, laden with confusion and difficulties. The output as measure by GDP dropped half while a number of firms faced a critical situation and unemployment increased. Weakened manufacturers lost competitiveness, and production of high added value goods was found to be difficult, if not impossible. Lack of confidence in the monetary system reduced the financial sources for industries. (*Refer to Section 2.1*)

Most the above symptoms are attributable to the drastic change RK has gone through in adapting to a market oriented economy, which is common to a number of nations under similar transition. Decision to transfer the capital of RK came in the middle of this transition.

Although faced with considerable criticism and resistance in the beginning, the new capital is surviving its most difficult times. Construction of the new capital was one of the most important and significant decisions in the new RK, and it needs to be substantiated, as this is the basis on which the future of RK will be expanded.

In the last three years, statistics show that the construction of the new capital generated effective demand and reduced unemployment. The population of Astana has increased by some 50,000 since 1997. The economy in Astana, sustained mainly by various construction activities, shows additional strength in RK. The capital transfer is taking a steady course.

11.1.2 Economic Viability of Capital Development

It is unquestionable that the city is not created overnight. Tokyo, for example, transformed itself from a barren township in wilderness to an international financial and business center of the world in 400 years or so. Washington D.C. has become a political and business center of America 210 years after its foundation. Construction of a new capital could not, and should not, be discussed only in the short term.

Normally, a physical plan for a city looks at 20 year in future at longest. This Master Plan has a 30 year planning period, which is extraordinary, only because the development of a new capital with national significance would inevitably require establishing the ultimate image of the new capital for a long time to come.

The economic analysis (*Refer to Chapter 8*) revealed that the projects proposed under this Master Plan, consisting of urban and architectural development, infrastructures development and engineering protection, have economic viability as a whole over the 30 years of planning period. This analysis is the first of the sort to scrutinize the economic cost and benefit of the entire capital development from an objective economic perspective. The implication of the analysis needs to be studied and accepted duly.

As is the case in general, costs of capital development tend to be “top-heavy”, requiring heavy investment in early years, whilst benefits are prone to accrue more in later years. One of the implications of the economic analysis is that the capital development could be economically viable if (and only if) the project is implemented uninterruptedly for 30 years, as stipulated in this Master Plan. Economic viability would naturally dissipate if the project is disrupted in the middle.

11.1.3 Key Factors for Successful Implementation of Capital Development

Based on the foregoing, three key factors could be delineated for the successful implementation of capital development. First, the issue of an implementation body; second the issue of implementation planning and programming; and third, the issue of financing.

(1) Stable and Capable Implementation Body

A Master Plan of a capital development comprises multi-faceted physical planning covering the superstructure and infrastructure of the city. The Master Plan for Astana is a comprehensive physical plan of this nature, intended for implementation in the future. The Master Plan thus requires an effective implementation body with stability and due capability to initiate and manage its implementation.

A capital normally has mixture of national level functions peculiar of the capital and local functions common to any city. Unless the capital is planned as a pure political city, this mixture of functions is essential and unavoidable. As Astana was planned as “Administrative and business city” (Blooming of Astana – Blooming of Kazakhstan; Concept), and this Master Plan adopts this principle, the implementation body of capital development shall be ready to coordinate the requirement pertaining to the republican and local levels with rationality and versatility.

Considering the multi-faceted nature of the capital development and complexity of the administrative structures in RK, the implementation body would either have to consolidate various roles and responsibilities relevant to the capital development now delegated to respective republican and local government agencies or to give it a strong capacity for coordination.

The basic line of discussion in this Master Plan for the implementation body is the following. For urban and architectural development in the central part of the new city center area on the left bank (District 13), where a number of republican government agencies and committees will be constructed, the republic government accordingly shall exercise direct control of development, public and private. For this purpose an independent republican level organization with full-fledged managerial and technical capacity will be needed. For other areas, the Municipality shall control and manage the development as before. The infrastructures development in both areas shall continue to be provided under the control of Municipality in due timing.

The implementation of the Master Plan would involve technical coordination of urban development and different types of infrastructure development. The implementation body therefore will have to be facilitated with such capacity for planning and supervising the implementation. As Astana Municipality will continue to exercise this capacity in the future, strengthening of technical and managerial capability necessitated for the work is considered urgent and imperative.

(2) Robust Finance

A rather widespread misconception that the new capital would be constructed by the public sector should be corrected. On the contrary, bulk of the new city is constructed by the private sector, and that is the natural course of the capital development.² In the case of Astana, about 70% of the total cost of capital development accrues in relation to the development of residential and commercial buildings, most of which will be privately financed. (*Refer to Section 8.2*)

² This could be easily verified by simple observation. If one stands in any international capital and look around, most of the buildings accommodating offices and apartment are private undertaking, and public facilities are limited to few.

Nonetheless, the role and responsibility of the public sector is essential and indispensable. The prerequisite for urban development such as roads, parks and utilities will have to be completed almost exclusively by the public sector. Without proper infrastructures in place, private investors would never construct facilities. Thus the role and responsibility of the public sector is truly important, particularly in the early years of development.

With regard to the development of Astana, the upcoming ten years will constitute an important decade when the infrastructure development of the new city center area on the left bank of the Ishim needs to be provided in due course. Robust financing has to be secured to cover the heavy investment needs in this decade. While the GOK's determination for this financing is strong, as clearly shown in Indicative Plan, much needs to be contemplated by international donor organization in provision of additional finance by soft loans.

International soft loans have already been committed to some of on-going projects³, and considerations are in progress on some other projects. In order to successfully implement projects under international soft loans, new or strengthened organization needs to be in charge, with high capability of project management, staffed by specially trained personnel adaptive to the international practices of project implementation and knowledgeable about the procurement guidelines of respective donor organizations.

Capital Development Corporation, which is one of the counterpart agencies for this Master Plan, showed its competence and capability for leading the way to the successful completion thereof. Such institutional backup from the Kazakhstan side will be essential in any of the future activities involving international donor organizations.

Concurrently, various improvements of existing institutional and administrative frameworks for urban development under private sector initiatives need to be launched. The present frameworks are not readily tailored to bring in foreign or domestic direct investment in this field. What is more relevant now is to provide a stable and institutionalized system to safeguard the indigenous rights of investors. This is an important medium-term task.

³ One of the example is the rehabilitation of the international airport of Astana, financed by JBIC of Japan with its loan agreement concluded in December, 1998.

Another relevant issue in private sector is limited financing sources for small and medium enterprises (SME). SME generally provides various urban services to all citizens and visitors of the city, and thus contributes to the substance of the city. Presently the same appraisal procedures are applied to all entrepreneurs regardless of the quality of the business plans, and the financing, if provided at all, has a high interest rate and long period of waiting (*Refer to Section 2.3*). Solution of this is an important issue is imperative in substantiating development of the new capital.⁴

(3) Formulation and Facilitation of Detail Plan for Implementation

For the Master Plan to take effect, detail plans need to be formulated and facilitated in various relevant fields. The detail plans must clearly stipulate the necessary construction and rehabilitation needs in specific districts with solid timeframe, reflecting the due appreciation of the present conditions. They also delineate role and functions of relevant organizations and agencies, reveal any necessary actions and show an action program graphically over relevant organizations and time.

Construction of facilities, urban development or infrastructures development, will normally require preceding feasibility studies and detail design work. This means that certain amount of lead time will have to be reserved before the construction work starts. The implementation program needs to take such pre-implementation activities into consideration.

This Master Plan presented a prototype of overall implementation program. (*Refer to Section 7.4*) This implementation program needs to be elaborated, updated and substantiated by the Kazakhstan side, preferably on a 10-year period basis. In this process, reference should be made to the existing plans such as "Blooming of Astana – Blooming of Kazakhstan (Concept and Action Plan), a basic plan of development of Astana with the planning horizon 5 years; "Indicative Plan", a regional socio-economic plan with the planning horizon of 5 years; Project Implementation Program (PIP) by GOK with the planning horizon of 3 years; and Long List for Yen Loan with the list of project considered for Yen loan for 10 years period. The

⁴ Another issue relevant to the private sector financing not considered in-depth in this study is introduction of mortgage type of loan to KZ. Some of the international financing organization is initiating such introduction, which is considered to be effective in further accelerating the substantiation of the capital development.

implementation program proposed hereupon must coordinate these relevant plans and programs well.

11.1.4 Specific Issues Pertaining to Implementation of Master Plan

The following are the essence of specific issues pertaining to the implementation of the Master Plan of Astana.

(1) Development of New City

The most important part of the new city on the left bank of the Ishim is the area called the New City Center. This area will accommodate most of the ministries and central government agencies, business centers and diplomatic missions. Infrastructures development has already been started by Astana Municipality, based on the instruction of President of RK. As this area will provide a representative image of Astana and RK in the future, planning of this district was one of the highlights of this Master Plan.

This Master Plan has provided a scaled up planning specifically for this district (*Refer to Section 3.7*). Varying height limitations were introduced to specific sub-zones to control the skyline of the district as a whole with embedded rhythm and variations. Building limitation lines (inclined) and set-backs were introduced to allow for wide opening view of the sky even from the ground level. Green belts were proposed for enrichment and enhancement of the district's townscape characteristics.

Considerations were made on the severe weather conditions of Astana in winter. Provision of covered pedestrian malls and shopping promenades are one of the examples.

This Master Plan also provided the Townscape Guideline (refer to Section 3.8), which is prepared as a tool for controlling and managing the ever changing townscape of the city and lead to truly an authentic city in the future, to which not only the citizens but also all the Kazakhstani nationals could take pride. The essence and spirits established in the Guideline should be respected and followed in the course of development procedures of buildings and infrastructures.

Following this District Planning and Townscape Guideline mentioned above, a detail plan ready for implementation needs to be worked out primarily by the Kazakhstani side.

(2) Improvement of Existing City

The Master Plan adopts a planning methodology of consolidating the existing city with an approximate population of 330,000 mainly on the right bank of the Ishim River, and a new city to expand on the left. The existing city has the history of starting as a small township on the trading route in the Steppe, expanded after designated as the center of Virgin Land scheme by Soviet Union in 1960's, and further developed as a regional industrial center in 1970's and onwards. If the new city symbolizes the future, the existing city would reflect upon the cherished history of the city and the nation. In this respect, to vitalize and improve the existing city remains to be an imperative outstanding issue of the Master Plan.

While a number of new constructions take place in the existing city, there exist old and sparse low-rise residential areas only a few blocks away from the city center. Imbalance of land use, as depicted in this example, persists in the existing city. In parallel with the construction of the new city, redevelopment of such low-density old residential areas needs to be initiated. Such redevelopment is planned to proceed from the central city area to north and northeastern fringes of the existing city area in phases.

While part of the city traces back to 1830's, visitors and citizens of this city could find late 19th century merchant houses as well as a number of two and three storied townhouses with authentic facades. Preservation of the historic townscape should be advocated with priority, because they provide accent to otherwise tedious townscape of the existing city, and they could never be rebuilt, if once lost.

Improvement and construction of roads need to be paced with the expansion of the city. This Master Plan provided the proposed network of roads with a hierarchy. Particularly important are the extension and widening of Sary Arka and Valikhanov streets to the south to connect to the New City Center areas.

Insufficiency of parks and greenery should also be amended. Special attention needs to be paid to providing urban parks in existing city fabric, as well as creating and enhancing the large scale green open space and eco-forest in and around the city.

Following the improvement plans for the existing urban areas, a detail plan ready for implementation needs to be worked out primarily by the Kazakhstani side.

(3) Revitalization of Northern Industrial Area

A vast area north of the railway track, called Northern Industrial Area, was the engine of expansion of this city in 1970's and onwards as a regional industrial center specializing in food processing and non-ferrous manufacturing. Decade after the independence, the production of the factories is low, with a number of abandoned facilities. The major cause of this decline is thought to be a drastic reduction or even a loss of demand for goods produced therein due to disintegration of FSU.

This Master Plan contemplated that Astana should have an industrial development strategy appropriate to the capital city. The proposed strategy is such that in the meantime the growing demand for consumer goods and construction materials should be catered for by enhancing import substitution. This will be followed by harnessing of research and development (R&D) and information technology (IT) types of new industries, capitalizing on well-educated youngsters chiefly graduated from universities and colleges located in Astana. One of the noteworthy efforts is carried out in the Astana Technopark.

Technical assistance should be channeled in this field to substantiate and strengthen the industries appropriate for the new capital. Donor nations should pay serious considerations in this regard.

(4) Infrastructures and Engineering Protection

The development of infrastructures refers to provision and enhancement of water resources, water supply, sewerage, power and heat supply, gas supply, telecommunication, and solid waste management; while engineering protection refers to flood protection and drainage. This Master Plan provided demand projection up to the 2030 for infrastructures and formulated phased plans for respective areas of infrastructures and engineering protection. (*Refer to Chapters 4 and 5*)

1) Water supply and sewerage

From among the nine areas above, GOK requested assistance in four urgent areas in December 1999, namely water supply, sewerage, power and heat supply, and telecommunication. The Progress Report issued in April 2000 provided a recommendation to take up water supply and sewerage in combination for a feasibility study. Accordingly, JICA provided an additional grant-basis technical assistance to carry out the

Feasibility Study starting in July. The Draft Final Report for the FS was submitted in January 2001, and provision of yen loan is contemplated in this connection.

2) Power and heat supply

Power and heat supply continues to be an urgent and indispensable infrastructure, particularly in the new development area of Astana. Construction of 115MW conventional coal-fired electric power and heat energy generation plant is proposed at TETs-2 by 2006. A feasibility study is recommended for commencement with a target of seeking an international soft loan to facilitate this proposal.

3) Telecommunication

Provision and enhancement of telecommunication network is imperative to the development of the new capital, as it relates to the essential information infrastructure of the new capital. This sector needs to attract a stable and favorable financing source, appropriate to the semi-public nature of this sector. Investigation of options should be conducted thoroughly, and pre-financing studies appropriate for the financing source should be accelerated.

4) Other infrastructures and engineering protection sectors

Other infrastructures and engineering protection sectors will have considerable contribution to the well being of the new capital. Efforts should not be spared in allocating necessary budgets and resources, based on readily formulated sector-wise plans.

(5) Regional Development in Hinterland

The city and its hinterland has an interactive relationship. It is often observed that when a city expands and develops, the hinterland also goes through drastic transformation. If the region lacks operational strategy for development, the hinterland may only suffer from outflow of population absorbed by the city, which would lead to decay of the hinterland, and the support from the hinterland to the growing city would only be temporal.

The hinterland of Astana in this Master Plan is composed of *Akmola Oblast* and *Karaganda Oblast*. The former is predominantly an agrarian province, while the latter is inclined for resource-oriented industries. Enhancing regional partnership, with roles and functions differentiated depending on

the available resources and constraints, and overall strategy for integral efforts to sustain them shall be necessary.

Promotion of agriculture primarily catering for the growing food demand of Astana is considered to have priority. The vast hinterland with gifted potential for agricultural production needs to be investigated in-depth. This project may also be embedded with a future seeds for strategic agriculture to cater for wider regional and international demands.

The proposed regional and sector strategies were already discussed in this Master Plan (*Refer to Chapter 10*). To put them in practice, a coordination committee with representatives from the provincial and republican governments shall be formed and operated jointly.

11.2 Recommendations

This Master Plan of Astana was the first effort to foresee, plan and evaluate the course of development of the new capital of RK, conducted with a high degree of comprehensiveness and integrity. The fact that this effort was conducted as part of the grant-basis official development aid program of Japan was noteworthy and significant in the mutual relationship of the two nations. The most imperative output of this effort was the clearly delineated goals and images, duly supported by specific plans and analyses, and solid economic analysis and organizational considerations.

This Master Plan marks the commencement of the 30 year long uninterrupted implementation phase of the new capital development. The relevance of the Master Plan rests in flexibility of implementation activities in due respect to the conception and methodologies established in this Master Plan.

Presented below are the recommendations for immediate actions, following the conclusion of the Master Plan in the previous section:

(Organizational strengthening)

- Establish firmly an implementation body with sole responsibility for the development of Astana with clear demarcation of responsibility and strengthened capacity for implementation of the Master Plan.
- Facilitate an organization with high capability of project management, staffed by specially trained personnel adaptive to the international practices of project implementation to effectively manage projects financed by international soft loans.
- Formulate a coordination committee with representatives from the provincial and republican governments to discuss and facilitate the regional development strategies proposed in this Master Plan, and implement them in due course.
- Allocate necessary budgets and resources and strengthen the functions of Astana Municipality with regard to the construction and improvement of infrastructures and engineering protection, based on readily formulated sector-wise detail plans.

(Financing)

- Seek an international soft loan on the improvement of water supply and sewerage, on which the feasibility study is being completed.

- Prepare for a feasibility study on the power and heat supply sector of Astana to improve the facilities, by investigating the possibility of grant-based technical assistance.
- Investigate options for providing a stable and favorable financing source for the telecommunication sector, appropriate to the semi-public nature of this sector, and accelerate pre-financing studies appropriate for the financing source.
- Harness a stable and institutionalized system to safeguard the indigenous rights of investors to promote foreign direct investment, and provide a system to support small and medium enterprises (SME) with good business plans.

(Implementation of Master Plan)

- Formulate plans to implement this Master Plan over a ten-year period by clearly stipulating the necessary construction and rehabilitation needs in specific districts with solid timeframe, reflecting the due appreciation of the present conditions therein.
- Work out a detail plan ready for implementation for the new development area (particularly New City Center area) on the left bank of the Ishim, following the District Planning and Townscape Guidelines established in this Master Plan.
- Work out a detail plan ready for implementation for the existing urban areas following the improvement plans for the existing urban areas, roads and parks.
- Work out a detail plan for the improvement of the Northern Industrial Area, with possible introduction of technical assistance from an international donor, to substantiate and strengthen the industries appropriate for the new capital.
- Promote agricultural development in the hinterland of Astana, primarily catering for the growing food demand with an option in the future for strategic agriculture to cater for wider regional and international demands.

