

**The State Agency on Architecture and Construction (SAAC)
The State Service of Geodesy and Cartography (SSGC)
The Kyrgyz Republic**

Japan International Cooperation Agency (JICA)

**THE STUDY ON
INTEGRATED DEVELOPMENT PLAN
OF ISSYK-KUL ZONE
IN THE KYRGYZ REPUBLIC**

**FINAL REPORT
SUMMARY**

February 2006

**KRI International Corporation
Nippon Koei Co., Ltd.
Aero Asahi Corporation**



Kyrgyz Research Institute on
Architecture and Town Building



Government of the Kyrgyz Republic
State Commission on Architecture and
Construction



Japanese International
Cooperation Agency

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FEBRUARY 2006

- VOLUME 1: FINAL REPORT SUMMARY**
- VOLUME 2: FINAL REPORT MAIN REPORT**
- VOLUME 3: FINAL REPORT SECTOR REPORT**
- VOLUME 4: FINAL REPORT GIS MAP SERIES**

Currency Equivalents
US\$1.00 = 42 Kyrgyz Soms
As of mid-2004

Unless otherwise specified

Preface

In response to the request from the Government of Kyrgyz Republic, the Government of Japan decided to conduct “The Study on Integrated Development Plan of Issyk-kul Zone in the Kyrgyz Republic” and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA dispatched a study team to the Kyrgyz Republic over the period from November 2003 to February 2006. The Study team consists of IKRI International Cooperation, Nippon Koei Co., Ltd., and Aero Asahi Corporation.

In Addition JICA set up an advisory committee headed by Mr. Shuji Koiso, Professor of Kushiro Public University between November of 2003 to November of 2004, which examined the study from specialist and technical point of view.

The study team held a series of discussions with the concerned officials in the Government of the Kyrgyz Republic and international partners, conducted related field surveys and trainings. After returning to Japan, the study team conducted further studies and compiled the final results in this report.

I hope that this report will contribute to Development of Issyk-kul Zone and to enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the concerned officials in the Government of Kyrgyz Republic for their close cooperation extended to the study team.

February 2006

Kazuhisa Matsuoka

Vice - President

Japan International Cooperation Agency

February 2006

Mr. Kazuhisa Matsuoka
Vice President
Japan International Cooperation Agency (JICA)

Dear Mr. Matsuoka

Letter of Transmittal

It is with great pleasure that we submit the Final Report of the “Study on Integrated Development Plan of Issyk-Kul Zone in the Kyrgyz Republic” which has been completed by joint efforts of the experts assigned by the State Commission on Architecture and Construction and the State Service of Geodesy and Cartography of the Kyrgyz Republic and the JICA Study Team from October 2003 to February 2006.

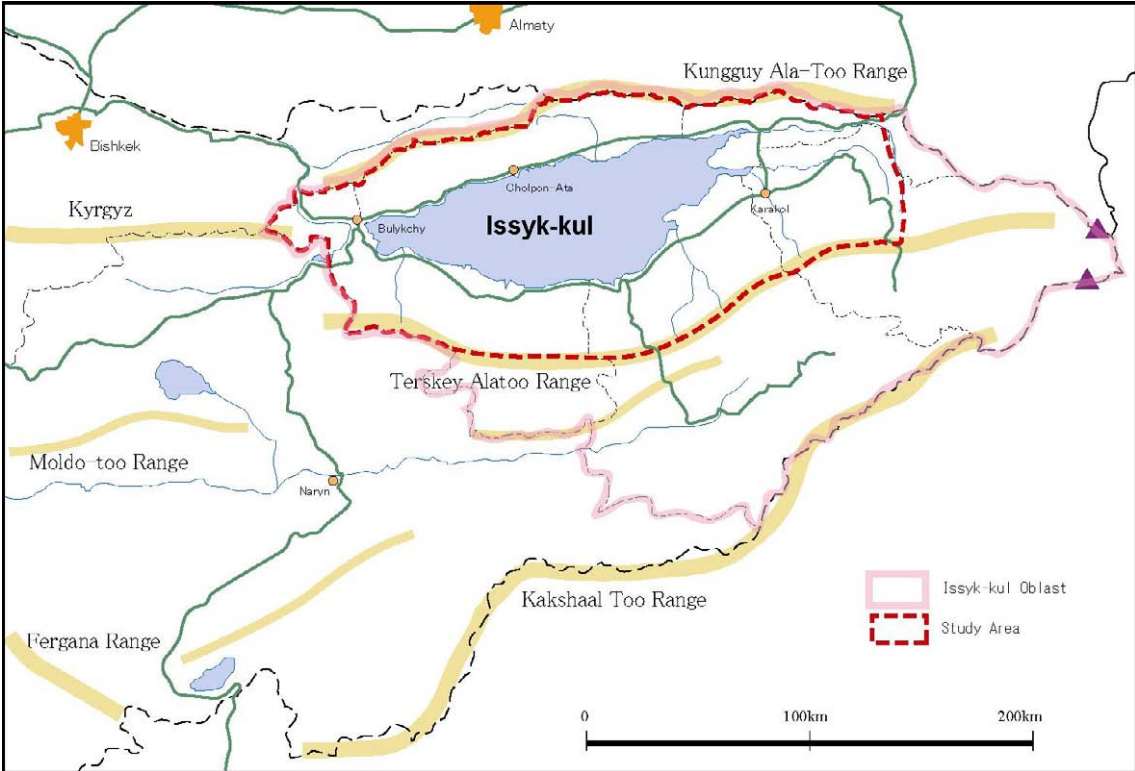
The Study has worked out strategies and programs to attain balanced development of the Issyk-Kul region which is endowed with a superb landscape of the Issyk-Kul Lake surrounded by the ever-snowed Tyan Shan mountain ranges. Digital topographic maps (1/25,000 and 1/100,000) have been newly prepared, and a master plan for integrated regional development has been formulated on the basis of assessments of resources available in the region. A participatory approach has been taken for the plan formulation, as well as for the pilot project operations.

Various actions are required to make the Issyk-Kul region more attractive to the people living in the region and visitors, and to make it more dynamic in economic and social activities. Our Study Team hopes that the Final Report would serve for implementation of the proposed programs by the initiative of stakeholders at the regional level as well as by the central agencies concerned.

Our Study Team wishes to take this opportunity to express our sincere appreciation for the kind assistance and cooperation extended by the people in Issyk-Kul, working group members, and all other parties concerned in the Kyrgyz Republic. This Final Report is a fruit of excellent collaboration of all participants in this Study.

Very Truly Yours,

Hajime KOIZUMI
Study Team Leader



Study Area

**THE STUDY ON
INTEGRATED DEVELOPMENT PLAN OF ISSYK-KUL ZONE
SUMMARY**

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1 INTRODUCTION

The Issyk-Kul Oblast (about 23,000 km²) has a large lake named Issyk-Kul Lake (about 6,250 km² in area and at the elevation of 1,600 m above mean sea level), surrounded by the snowed covered mountain range of Tian Shan. With its beautiful landscape, the Issyk-Kul Lake is famous as a tourism spot not only for the people of the Kyrgyz Republic but also for those of the former Soviet Union and the world at large. A northern route of the Great Silk Road runs along the Lake. The social and economic activities in the Issyk-Kul zone, however, have remained stagnant since the transfer to the market-oriented economy, except for the summer tourism season that extends for about three months.

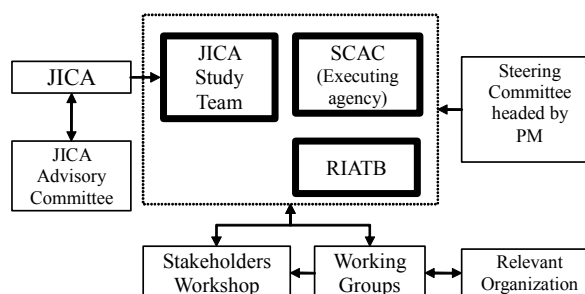
The Government of the Kyrgyz Republic intends to promote tourism-led regional development in the Issyk-Kul zone and reactivate the regional economy for the people in the zone and the country as a whole. In view of the fact that various development programs have been conceived and/or implemented somewhat independently, the Japan International Cooperation Agency (JICA) suggested and agreed with the Kyrgyz government on formulating an integrated long term development plan of the Issyk-Kul zone, with a target year set at 2025. The integrated regional development plan will define the development framework, scenarios, and strategies, as well as sectoral development programs and the overall land use and environmental management plans.

For this JICA Study, the Government organized a Steering Committee headed by the Prime Minister and designated the State Committee on Architecture and Construction (SCAC) as the executing agency. Counterpart experts have been assigned by the Research Institute of Architect and Town Building (RIATB). The JICA Study Team concurrently organized six Working Groups for joint analysis, study and plan formulation. Major findings and results of studies by the Working Groups and JICA Study Team have been explained to the stakeholders at the Workshops held on five occasions.

Recognizing the vital role that village communities would play in integrated development, the JICA Study Team has operated two pilot projects, namely community center development and village nursery development. The results of these pilot projects have been reflected in the plan formulation.



Photo S.1 Steering Committee Meeting



Source: JICA Study Team

Figure S.1 Study Organization

This Study outlines how to attain sustainable development in the Issyk-Kul zone, protecting the environment of the Issyk-Kul Lake and mountainous areas, and demonstrating administrative decentralization combined with the enhancement of social and economic activities.

2 NATIONAL DEVELOPMENT FRAMEWORK

Kyrgyz Republic in Central Asia

The position of the Kyrgyz Republic is first reviewed in the development framework of Central Asia. All five countries in Central Asia are land-locked, resulting in difficulties in accessing seaborne trade. Due to topographic conditions and barriers in transportation/trades among these five countries, regional integration in Central Asia is still in the initial stage. However, the political and economic relationships in and around Central Asia have been developed to achieve a regional cooperation. Regional integration in Central Asia might be further promoted, in which case the Kyrgyz Republic and the Issyk-Kul zone would offer an ideal location for inter-regional dialogues.

Central Asia has a total population of about 56 million (2000), while the Kyrgyz Republic has a population of 5 million. Most urban centers in Central Asia are developed adjacent to mountain ranges due mainly to access to water resources. It is envisaged that a Central Asia Piedmont Urban Belt would be formed encompassing such major centers as Almaty, Bishkek, Osh, Dushanbe, Tashkent and Samarkand. The Issyk-Kul zone would be integrated into this Central Asia Piedmont Urban Belt.

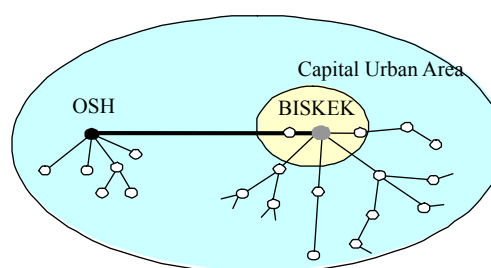
The macroeconomic situation in Central Asia has changed drastically in the last decades. While the hydrocarbon-resource endowed countries (Kazakhstan, Uzbekistan and Turkmenistan) have achieved substantial growth, the economies of the less endowed countries (Kyrgyzstan and Tajikistan) have lagged and are suffering from accumulated debt. Nevertheless, Kyrgyzstan and Tajikistan are blessed with water resources. The hydrocarbon and water resources in Central Asia could be utilized for the mutual benefit of people in the region. In this context, water resources in the Kyrgyz Republic, as well as in the Issyk-Kul zone, are not only an asset of the Republic but also a valuable asset of Central Asia.

National Physical Development Framework

To respond to the changing economy and society of the Kyrgyz Republic in the overall framework of regional development in Central Asia, the Republic is expected to form a new Kyrgyz society based on the market-oriented economy and the information technology renovations.

From the viewpoint of national physical development, major issues are: (i) conservation of the natural environment, (ii) overcoming the landlocked disadvantage, (iii) integration of the socio-economic centers, and (iv) vitalization of the rural economy and society. To this end, it is required that the direction of development be clearly stated in the national and regional development plans, that the industrial development strategies be established and implemented, and that various systems be institutionalized into the society by achieving governance and building an infrastructure.

Development of the Republic has been polarized into the Bishkek and Osh areas. These development poles will be integrated into a single spatial structure in the medium term. The Issyk-Kul zone will be integrated into the national spatial structure via the Bishkek area.



Source: JICA Study Team

Figure S.2 National Spatial Structure

Four different concepts are proposed for national spatial development: (i) metropolitan area, (ii) allied city network, (iii) core city network, and (iv) collective local villages. For the Issyk-Kul zone, the core city network development is applicable. While the state provides the direction towards regional development, the region itself is taking the initiative with various regional characteristics and independence.



Source: JICA Study Team

Figure S.3 Core City Network

Comprehensive Development Framework (CDF)

The Kyrgyz government prepared the CDF that embraces a diverse range of social, structural, human, governance, environmental, economic and financial components, with a target year of 2010. An average annual GDP growth rate of 5% in real terms is envisaged under the CDF. Likewise, the National Poverty Reduction Strategy (NPRS) for 2003-05 has been announced. Poverty incidence has been reduced from 52% in 2000 to 41% in 2003, but is still relatively high. The mid-term macroeconomic projections have been prepared as tabulated below.

Table S.1 Mid-term Macroeconomic Projections

	2003 Actual	2004 Expected	2005	2006	2007
			Forecasted		
Nominal GDP, bln. Soms	83.4	91.8	100.5	110.5	121.5
Real GDP growth rate, %	6.7	4.0	4.5	5.3	5.2
GDP composition, %					
Private consumption	68.3	69.0	68.5	67.4	66.0
Government consumption	17.5	17.9	17.7	17.7	17.1
Gross investments	18.0	18.1	19.8	20.3	20.6
Public investment	5.3	3.9	3.5	3.1	3.2
PIP (external funding)	4.4	3.5	3.2	2.9	2.8
Private investment	12.7	14.2	16.3	17.2	17.4

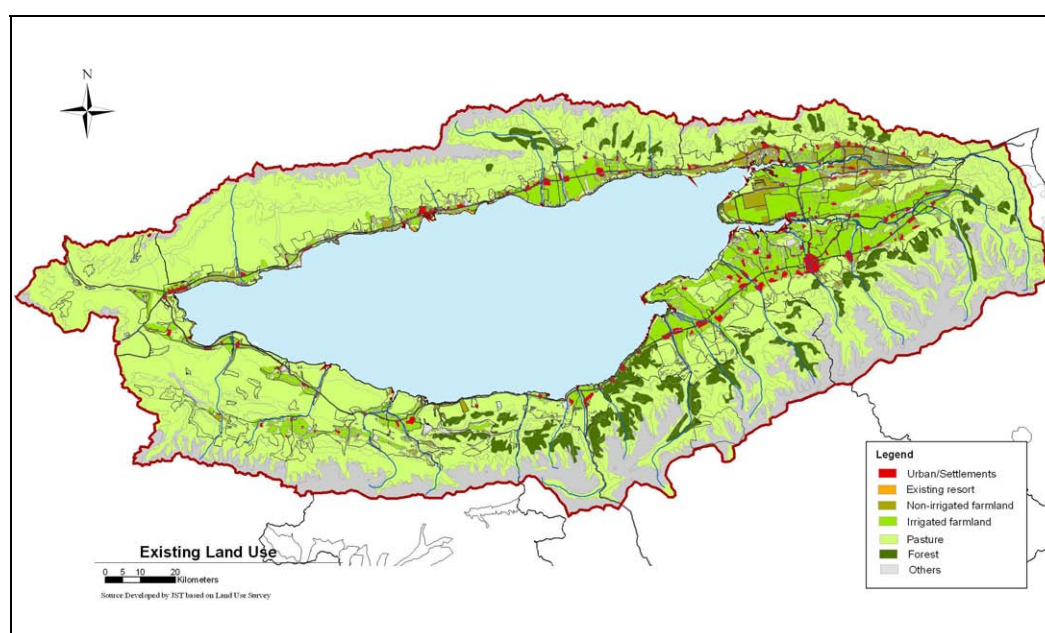
Source: NPRS

The Kyrgyz government is promoting decentralization and deregulation under the CDF. The “Decentralization of State Government and Development of Local Self-Governance through 2010” was adopted in 2002 and legal institutional reforms are in progress. The “Local Self-Governance and Local State Administration” (2002) and other laws have been promulgated, providing the foundations for administrative and economic autonomy of local self-governments.

3 CURRENT SITUATION OF ISSYK-KUL ZONE

Geography and Land Use

The entire area of the Issyk-Kul zone is situated within the administrative boundary of the Issyk-Kul Oblast, extending to all or part of five Rayons. There are three towns (Karakol, Balykchy and Cholpon-Ata), 58 Ail-Okumotus and four SUTs. The land in the Issyk-Kul zone comprises grassland/shrub (55.5%), a mixture of forest and grassland (20.5%), agriculture (14.4%), forests (5.3%), bare area (3.7%), and so on. The majority of land (68% to 81%) is privately-owned.



Source: JICA Study Team

Figure S.4 Current Land Use

Demography and Employment

The Issyk-Kul Oblast had a total population of 420,600 as of 2002, accounting for 8.4% of the national total. The average annual growth rate was 0.4% from 1997-2002. The low growth rate is attributable to the emigration of Russians, Germans and others from the Oblast and also from the Republic. More than 70 nationalities live within the Oblast. Currently, 79% of the population is Kyrgyz and 13% Russian. The urban population accounts for 29.1% and the rural population 70.9%. Of the total employment in 2002, nearly 55% were engaged in agriculture, 37% in the service sector and 8% in industries. Employment in the agriculture sector has been gradually decreasing, while it is increasing in the service sector.

Social Conditions

Basic social infrastructure (e.g. facilities for education and public health) had been developed during the Soviet administration before independence, and their heritage is substantial. There are 189 public day schools (13.4 pupils per teacher), 897 medical doctors (21.4 doctors per 10,000 people) with 1,335 beds in hospitals and dispensaries.

One of the difficulties in the education sector is a decline in enrolment. Graduates from the 9th grade account for 88.4%, while graduates from the 11th grade make up only 22.6%. Secondary enrolment rates are now below 50%, compared to 65% in 1989. The health indicators also reflect an increase in the kind of risk-taking behavior generally associated with an adverse social environment, including drug abuse and unsafe sexual behavior. Degradation of the social conditions is partly attributable to the decline in the government expenditure in education (from 7.6% of GDP in 1990 to 4.5% in 2002) and in public health (from 3.7% in 1990 to 2.0% in 2002). This will lead to implications that the integrated regional development plan should focus more on income generation at the village and community levels.

Another important factor is that the social capital is not consolidated and has risks due to a lack of function as a community. In addition, the youth are at a risk of unemployment, and alcohol and drug abuse problems. In this context, it is prerequisite that people are encouraged to form communities and youth is motivated to form groups to achieve common targets in social and economic activities. The integrated regional development plan should pay more attention to the community and youth so that they will be more vigorously integrated into the development process.

Regional Economy

The Kumtor Gold Mining Company, which accounted for nearly 40% of national industrial output and 50% of exports in 1998, is located within Issyk-Kul Oblast. The gross regional product (GRP) of the Oblast was about 8,230 million soms with Kumtor (10.9% of national GDP) and 6,560 million soms without Kumtor (8.7% of national GDP) in 2002, as tabulated below.

Agriculture, which represents 57.2% of GRP without Kumtor and employs nearly 55% of the population, is the most important economic sector in the Issyk-Kul zone. Tourism contributed 3.6% of GRP in 2002 (for reference, tourism accounts for 4.0% of the national GDP). Tourist arrivals have been increasing, from 58,800 in 2000 to 191,000 in 2003. There are 130 hotels and accommodation facilities, of which 89 are still owned by the public.

Table S.2 Macroeconomic Features of Issyk-Kul (2002)

	GRP with Kumtor	GRP Without Kumtor
GRP(mil. soms)	8,228.1 -	6,561.3 -
Agriculture	3,750.2 (45.6%)	3,750.2 (57.2%)
Industry	2,523.4 (30.7%)	366.7 (5.6%)
Construction	151.4 (1.8%)	151.4 (2.3%)
Service	1,636.8 (19.9%)	1,636.8 (24.9%)
GRP per capita (KGS)	19,604.7 -	15,633.3 -
GRP per capita (USD*)	418.0 -	333.3 -

* Exchange rate of KGS /USD in 2002 is 46.9

Source: Ministry of Finance and NSC

4 DEVELOPMENT FRAMEWORK AND ALLOWABLE CAPACITY

Social Framework (Population Projection)

The future population of the Issyk-Kul Oblast is estimated on the basis of cohort component methodology, reflecting the current natural growth rate and age structure. The natural annual growth rate will remain at 0.3% without development projects. Provided tourism-led development becomes more visible, less people will leave the region and additional labor inflow will be expected. For the three alternative scenarios, the population in the Issyk-Kul Oblast will grow at an annual rate of 0.7% to 1.5%.

Table S.3 Baseline Population Projection of Issyk-kul Oblast

	Population				Growth rates	
	2000	2002	2010	2025	2002-2010	2010-2025
Issyk-Kul Oblast						
Without case	415,500	419,700	429,000	446,000	0.29%	0.25%
Low growth case			442,000	487,000	0.65%	0.65%
Moderate growth case			452,000	526,000	0.93%	1.02%
Advanced growth case			467,000	583,000	1.44%	1.49%
Kyrgyz Republic	4,920,000	4,984,400	5,427,800	6,301,500	1.07%	1.00%

Source: NSC, JICA Study Team estimate

Economic Framework (Macroeconomic Projection)

The national economic target has been set by the CDF towards the year 2010, with the overall GDP growth rates targeted at around 5%. These estimates are considered reasonable, and the subsequent projection up to the year 2025 has been made on the basis of gross value-added in each sector. Three alternative frameworks are formulated as shown below.

Table S.4 Alternative Macroeconomic Frameworks of Issyk-Kul Oblast

*million soms at 2002 price	Base year	Advanced growth case		Moderate growth case		Low growth case	
	2002	2010	2025	2010	2025	2010	2025
GDP of Kyrgyz Republic*	75,367	110,375	204,787	110,375	204,787	110,375	204,787
GRP of Issyk-kul*	6,561	9,900	25,400	9,501	22,335	9,300	17,800
(Targeted tourists numbers)	250,000	1,600,000	2,500,000	1,100,000	1,800,000	700,000	1,100,000
Population of KRG	4,984,400	5,427,800	6,301,500	5,427,800	6,301,500	5,427,800	6,301,500
Population of Issyk-kul	419,700	467,000	583,000	452,000	526,000	442,000	487,000
GRP per capita (soms)	15,633	22,000	44,000	21,000	42,000	20,000	36,000
Total employment	136,280	169,000	214,000	165,000	195,000	149,000	167,000

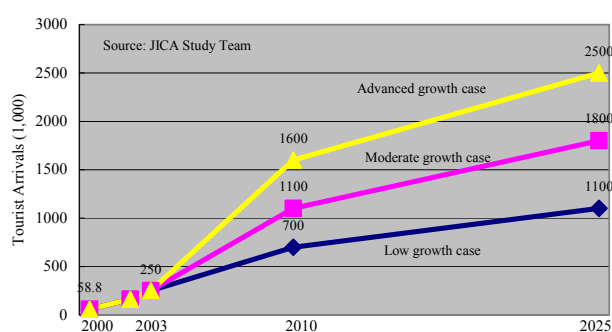
Note: Projection of national population is based on the MF and for Issyk-Kul is estimated by JICA Study Team.

Source: Ministry of Finance, NSC and JICA Study Team estimate

Tourism Sector Framework (Projection of Tourist Arrivals)

Concurrent with the projection of GRP in the Issyk-Kul zone, tourist arrivals have been projected as the tourism sector has significant impacts on economic activities and the regional environment. Three alternative cases have been set for discussions at the Working Group, as well as at the Workshop by stakeholders, as summarized below.

Through discussions made at the Working Group and Workshop by stakeholders, the selection of the moderate growth case has been adopted; i.e., the tourist arrivals will reach 1.1 million in 2010 and 1.8 million in 2025. The foreign tourists are expected to reach around 0.8 million in 2010 and 1.2 million in 2025.



Source: JICA Study Team

Figure S.5 Forecast of Tourist Arrivals in Issyk-Kul Zone

Land Use Framework (Allowable Capacity from Land Use Perspective)

The land available for expansion of lake-side resorts is a limiting factor for development of tourism and related industries in the Issyk-Kul zone. Based on several factors, the most suitable lands for additional development of lake-side resorts are estimated to be 39.0 km². This area is more or less equivalent to the land requirement for 1.1 million visitors projected for 2010 under the moderate case of tourist arrivals.

Table S.5 Land Suitable for Lake Side Resort

Rank	Area (km ²)
1	39.0
2	513.8
3	814.0
4	216.6
5	438.9
Total	2,022.2

Source: JICA Study Team

Environmental Framework (Protection of Lake Water Quality)

The most sensitive ecological system in the Issyk-Kul zone is the water quality of the Issyk-Kul Lake. Changes in lake water quality have been examined for three alternative development scenarios; in terms of BOD, total nitrogen (T-N) and total phosphorus (T-P) as summarized below.

Table S.6 Change in Water Quality in the Issyk-Kul Lake

	2002	2010			2025		
		Advanced growth case	Moderate growth case	Low growth case	Advanced growth case	Moderate growth case	Low growth case
BOD	0.61	0.67	0.66	0.66	0.77	0.75	0.74
T-N	0.15	0.16	0.16	0.16	0.18	0.18	0.18
T-P	0.0011	0.0012	0.0012	0.0012	0.0014	0.0014	0.0013

Source: JICA Study Team

5 DEVELOPMENT OBJECTIVE AND SCENARIO

Development Objectives

The Issyk-Kul zone is a unique region endowed with a natural environment. It has a large natural lake surrounded by the Tian Shan mountain range. The region is full of bio-diversity and amenities associated with seasonal change. Although the natural conditions are relatively severe, due to a cold winter season, the people of various ethnic groups are warm in heart and fond of peaceful lives. For integrated development of the Issyk-Kul zone, it is proposed that the main objective is defined as follows:

Creation of a Healthy and Harmonized Region of Issyk-Kul

The Issyk-Kul zone is a region with mentally and physically healthy people. Further, it will offer facilities for promotion of amicable international relations and prevention of conflicts. Socially, various ethnic groups are living amicably and in harmony with the natural environment. Visitors will enjoy the warm hospitality of the local people. Harmony between the environment and the economic activities should be maintained, preventing pollution and promoting a cycle-oriented society.

Development Scenario

Three alternative development scenarios have been formulated, and each has been discussed with the stakeholders at the Workshops.

Table S.7 Three Alternatives for Issyk-Kul Development

Scenario		Regional Development Concept	Tourism Market	Tourist Arrival (million)		
					2010	2025
Advanced Growth Scenario	Major tourism destination in the Central/West Asia in line with the environmental capacity of the lake area	<ul style="list-style-type: none"> All appropriate coastal area will comprise the resort area. Northern shore; popular resort Southern shore; high grade resort 	<ul style="list-style-type: none"> World wide market/ Domestic market to the maximum extent 			
				International	1.0	1.5
				Domestic	0.6	1.0
				Total	1.6	2.5
Moderate Growth Scenario	Expansion of tourism market by introduction of diversification of tourism products	<ul style="list-style-type: none"> Northern shore; appropriate expansion Southern shore; new resort development in prospective areas Karakol area; hinter natural tourism destination 	<ul style="list-style-type: none"> New market (China, Thailand, India, Singapore) CIS countries Domestic market 			
				International	0.8	1.2
				Domestic	0.3	0.6
				Total	1.1	1.8
Low Growth Scenario	Eco-tourism will be the major product; Some expansion of current resort and leisure tourism	<ul style="list-style-type: none"> A limited resort development in and around Cholpon-Ata and Karakol Encouragement of eco-tourism in the natural forest and mountains 	<ul style="list-style-type: none"> Resort tourists of CIS SIT demand from EU and America 			
				International	0.5	0.7
				Domestic	0.2	0.4
				Total	0.7	1.1

Source: JICA Study Team

The stakeholders prefer to select an alternative that will attain moderate growth and protect the environment in order to create a region harmonized with nature.

Development Targets

The targets for integrated development of the Issyk-Kul zone under the moderate growth scenario are summarized below.

Table S.8 Targets for Development of Issyk-Kul Oblast
(million soms at 2002 price)

	2002	2010	2025	Growth rate	
				2002-2010	2010-2025
GDP of the Republic	75,367	110,375	204,787	4.9%	4.2%
of which Tourism	3,020	5,368	18,431	7.5%	8.6%
Share of Tourism	4.0%	4.9%	9.0%		
Share of Issyk-Kul Oblast	8.7%	8.6%	10.9%		
GRP of Issyk-Kul Oblast	6,561	9,501	22,335	4.7%	5.9%
Primary	3,750	5,197	8,917	4.2%	3.7%
Secondary	518	720	1,622	4.2%	5.6%
Tertiary	2,293	3,585	11,796	5.7%	8.3%
(of which Tourism)	234	456	1,825	8.7%	9.7%
Growth rate		5.0%	6.7%		
GRP Share					
Primary	57.2%	54.7%	39.9%		
Secondary	7.9%	7.6%	7.3%		
Tertiary	34.9%	37.7%	52.8%		
(of which Tourism)	3.6%	4.8%	8.2%		
GRP per capita (soms)	15,633	21,020	42,462		

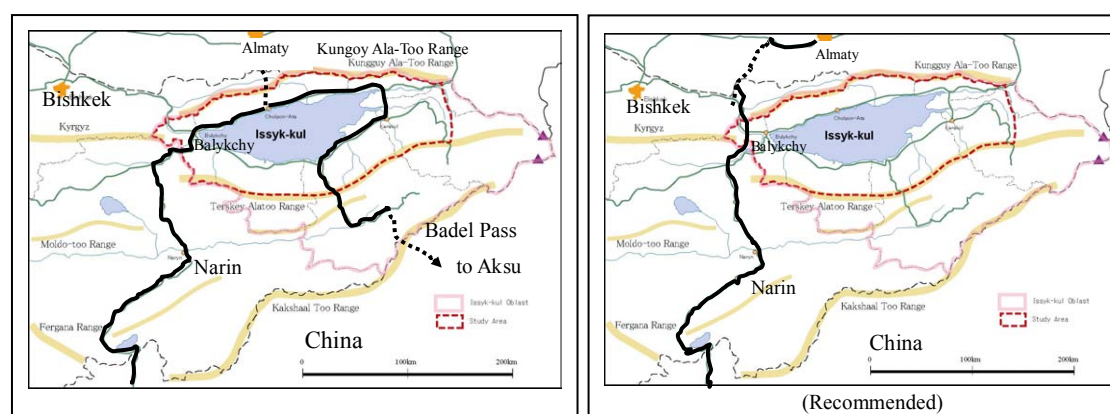
	2002	2010	2025
Population	419,700	452,000	526,000
Urban Population	123,800	136,000	185,000
Rural Population	295,900	316,000	341,000
Share of Urban Population	29.5%	30.1%	35.2%
Share of Rural Population	70.5%	69.9%	64.8%
Employment of Issyk-Kul	136,280	165,000	195,000
Primary	75,260	74,000	70,000
Secondary	10,170	12,000	20,000
Tertiary	50,850	79,000	105,000
Employment by share			
Primary	55.2%	44.8%	35.9%
Secondary	7.5%	7.3%	10.3%
Tertiary	37.3%	47.9%	53.8%
Labor participation rate	36%	39%	39%
Economically active	150,321	176,280	205,140
Unemployed	14,037	11,280	10,140
Unemployment ratio	9.3%	6.4%	4.9%

Source: JICA Study Team

Development of Regional Artery

To attain the development targets in line with the moderate growth scenario, a spatial development structure is to be defined. In view of the position of the Kyrgyz Republic in Central Asia and the national physical development framework as discussed in Section 2, development of the regional arteries in and around the Issyk-Kul zone has been defined.

Two alternatives have been evaluated. One is to develop multiple cross-border access to Issyk-Kul, including Almaty-Cholpon-Ata motorway, and Karakol – Aksu motorways crossing the Badel Pass. The other is to develop an artery from Almaty-Kemin-Balykchy-Narin-Torugart Pass to reach Kashgar in China. The first alternative requires more investment and more negative impacts on the environment. The second alternative will by-pass the Issyk-Kul Lake area and is more environmental friendly. The stakeholders have agreed to adopt the second alternative and protect the Issyk-Kul environment.



Source: JICA Study Team

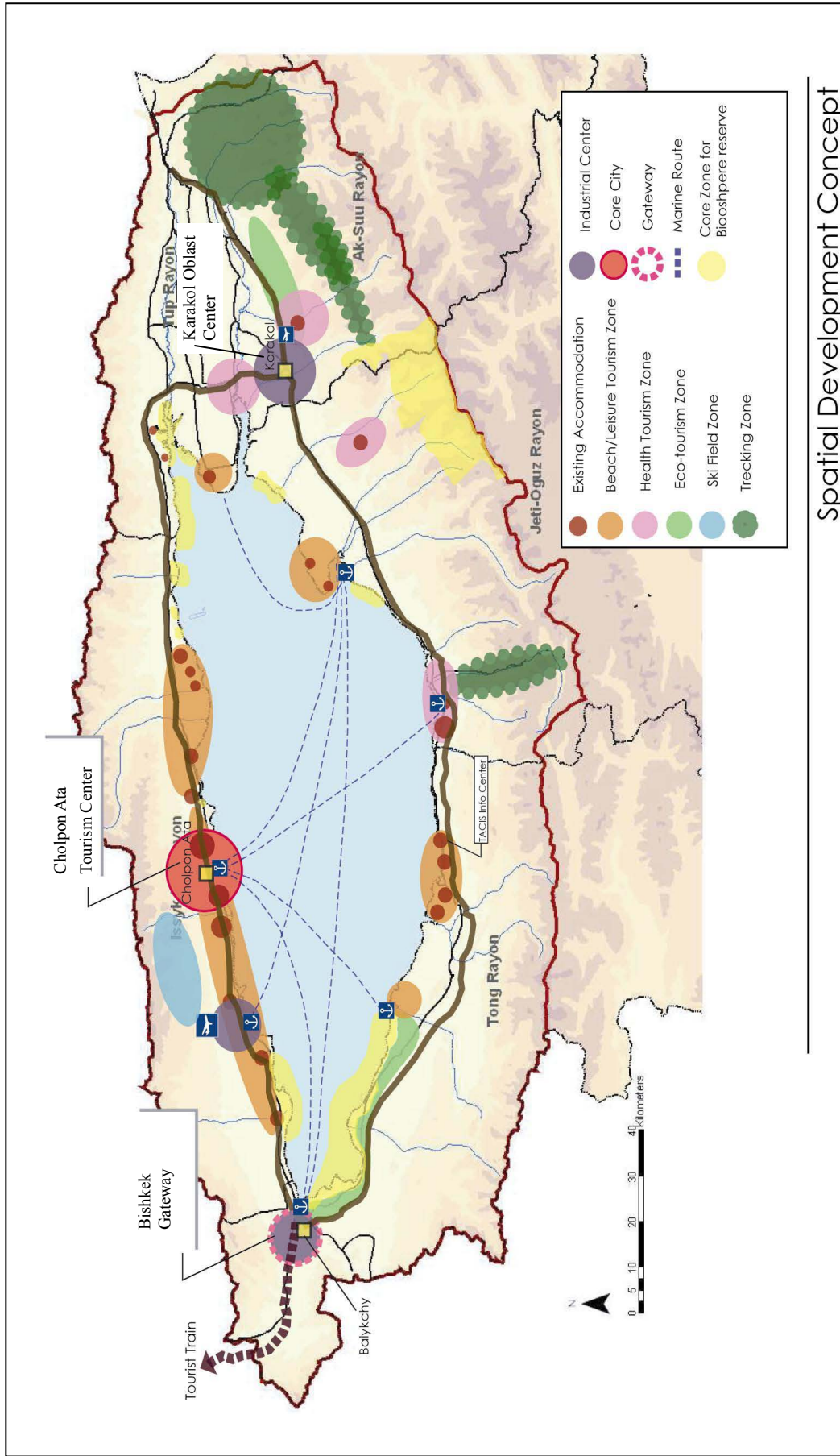
Figure S.6 Alternative Regional Artery

Spatial Development Structure

Based on the current pattern of settlements and level of accumulated urban functions, as well as the expected expansion of tourism demand and agricultural production, several economic cores will be formulated and developed in line with the development scenario of moderate growth. The tourism core will be formulated mainly in the northern coastal zone, southern coastal zone and mountainous hinterland area.

From the viewpoint of industrial development, some industrial cores will be developed at Balykchy, Karakol and Tamchy. A logistic center and transport terminal is envisaged in Balykchy. The city of Karakol will continue to serve as the administrative center and some processing industries will be promoted. In Tamchy, several unconventional types of industries, such as the IT software industry, will be considered along with its function as a tourism/service center. A new type of tourism-cum-industrial corridor would be created between Tamchy and Cholpon-Ata in the longer term.

With the distribution of core economic activities, as well as in line with transportation development around the Issyk-Kul Lake, a spatial development structure of the Issyk-Kul zone is formulated as illustrated on the following page.



Spatial Development Concept

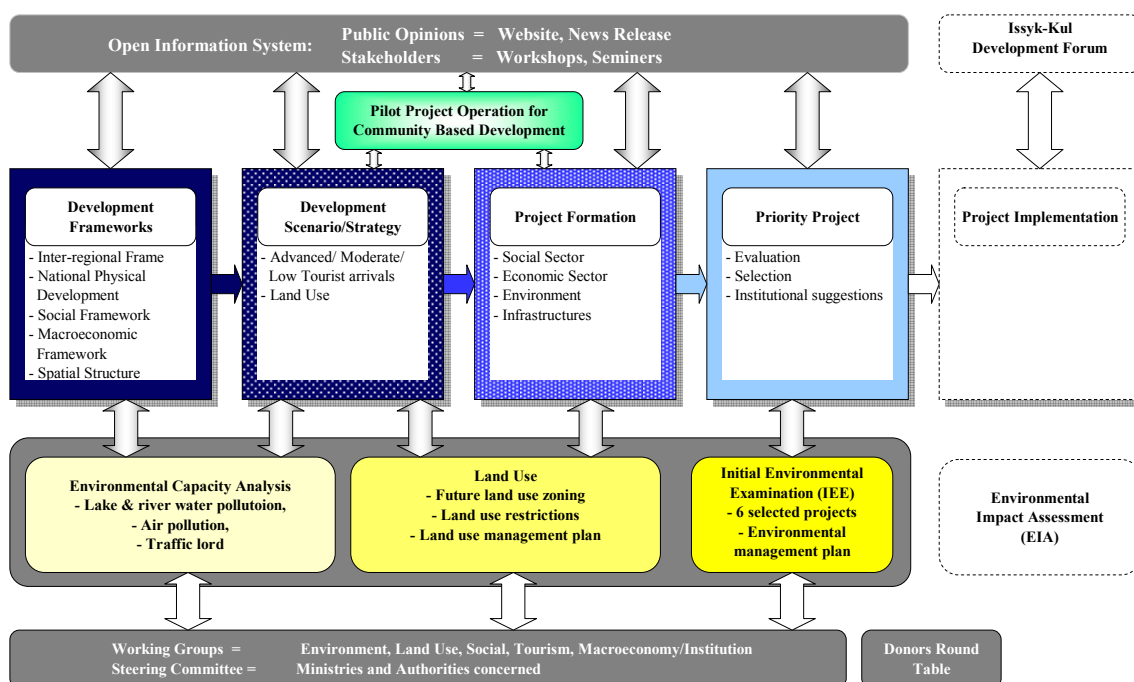
Figure S.7 Spatial Development Structure

Source: JICA Study Team

6 DEVELOPMENT STRATEGIES

Protection and Management of the Environment

To attain the objective of creating a “**Healthy and Harmonized Region of Issyk-Kul**” in line with the development scenario and targets, several strategies are adopted for the formulation and implementation of the integrated Issyk-Kul development plan. The primordial strategy is to protect the environment of the biosphere in Issyk-Kul. To this end, the Strategic Environment Assessment (SEA) is to be applied to plan formulation and implementation, as illustrated in the following diagram.



Source: JICA Study Team

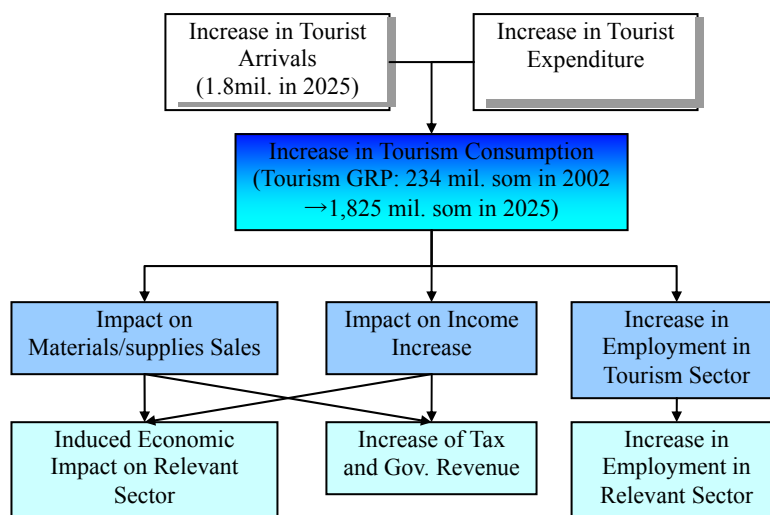
Figure S.8 Strategic Environmental Assessment Applied to Plan Formulation

Various environmental impacts affect the atmosphere, water, fauna and flora in the Issyk-Kul zone. The most significant ecological system is the Issyk-Kul Lake, as the Issyk-Kul zone consists of one eco-system around the Lake. The primary focus for environmental protection therefore is to be placed on the control of water quality of the Issyk-Kul Lake. The environment management plan is to be strategically formulated, including regulations on permissible pollutants in the Issyk-Kul Lake, as well as those in the river inflows.

Increased Tourism Consumption

Tourism in Issyk-Kul has developed so far with a lower economic and social impact on the region than for the overall country; for reference, the gross value added in the tourism sector was estimated to be 3.6% in Issyk-Kul while it was 4.0% in the whole country. It should be reminded that the increased number of tourist arrivals would not always result in increases in gross value-added (GVA) and employment in Issyk-Kul if tourists consume less or consume outside the Issyk-Kul zone.

More economic impacts are expected due to increased consumption by tourists in the Issyk-Kul zone. Therefore, with the improved services and facilities in the Issyk-Kul area, the tourism sector should make the utmost efforts to ensure that tourists consume more and stay longer in the zone. It is expected under the macroeconomic framework that the GVA in Issyk-Kul would be around 4.8% in 2010 and further increase to 8.2% in 2025, due to increased numbers of tourist arrivals and increased consumption by tourists in the Issyk-Kul zone.



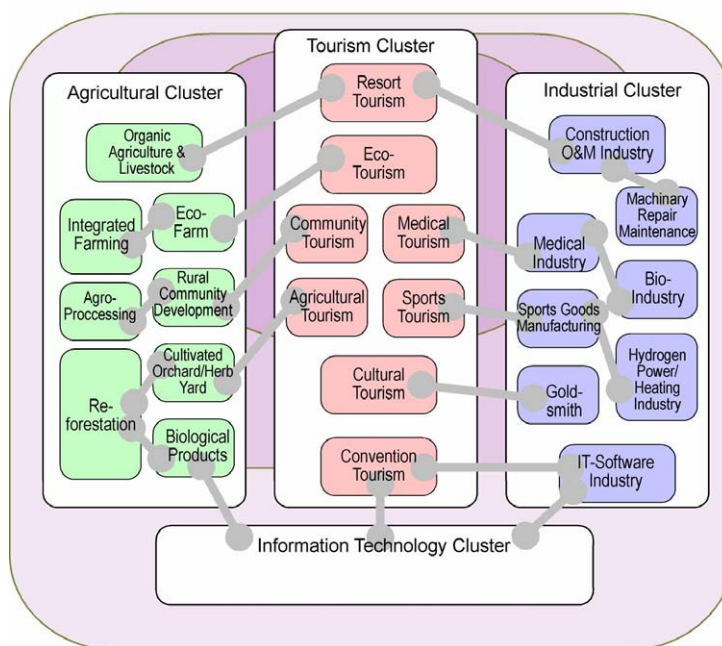
Source: JICA Study Team

Figure S.9 Economic Impacts by Tourism Consumption

Formation of an Issyk-Kul Cluster

Economic impacts are enhanced and tourism consumption is increased if vertical and horizontal linkages are formed and promoted among industries in the Issyk-Kul zone. In this context, it is strategically planned to promote a cluster in Issyk-Kul as illustrated below.

Ecological tourism with usually less economic impacts would have more impacts if it is linked with ecological farms producing herbs and other biological/healthy products. Hotels and other facilities should serve more healthy local products for better and longer stays in Issyk-Kul.



Source: JICA Study Team

Figure S.10 Clustering towards Creation of Healthy Region in Issyk-Kul

Development based on Participatory Approach

It is unfortunate that there currently exists a lack of trust among the people, communities and enterprises. Furthermore, information is not widely available to the public. Without mutual trust and an open information system, it is difficult to attain the targets set for social and economic development. It is therefore planned that the Issyk-Kul development plan be formulated and implemented by means of a participatory approach and in an open information system.

Through experience gained in the operation of two pilot projects in the course of the Study, the people in the region will realize that cooperation in the community is indispensable for the enhancement of livelihoods and that competition among the groups is at the same time required for the market-oriented economy. The social capital will also be consolidated through the participatory approach. An open information system is to be established for promotion of the participatory approach. Unless an open information system is ensured, mutual trust would not be enhanced and the participatory approach would not be sustainable.

Community Development as a Basis of Integrated Development

The participatory approach is to be initiated firstly through enhancement of community at the village level. As experience is gained through the operation of two pilot projects in the course of this Study, the village people will recognize that individual efforts will not be sufficient to face the competition under the market economy. Communities in Issyk-Kul should be strategically empowered to collectively work to attain the common target and to take their initiative in development.

One of the opinions expressed at the Workshops was to develop “elite tourism” in Issyk-Kul. It is understandable that the tourism facilities and services should be of a high quality. However, if elite tourism means developing such facilities in a closed concept without promoting linkages with communities in the vicinity, visitors would be unable to enjoy healthy contacts with the people in the region.

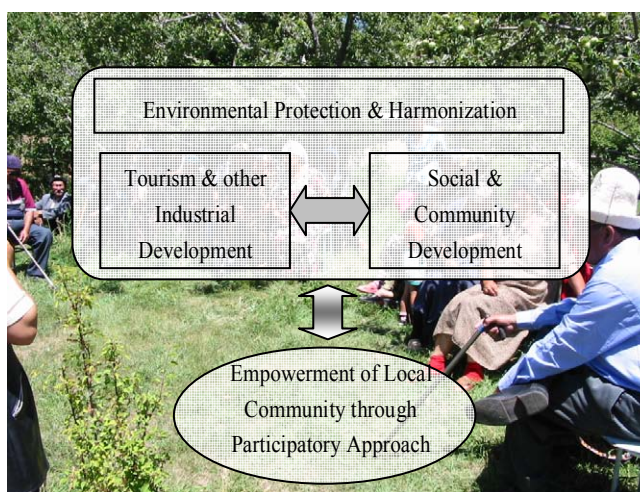


Figure S.11 Empowerment of Local Communities for Integrated Regional Development

Promotion of a Cycle-oriented Society

Fortunately, a mass-production type of industry is not planned in the Issyk-Kul zone. The community and industrial activities are more oriented to produce niche products for niche markets. In this context, it is planned that a cycle-oriented type of society would be promoted in the Issyk-Kul zone. For instance, villagers will cultivate apple trees. Bee cultures are promoted in and around apple orchards. Honey is marketed and propolis is processed for medicine. Harvested apples are used for human consumption and for processing juice. Wastes of juice extraction are utilized for cattle breeding in apple orchards where the excrement of cattle is used as nutrients. Sewage collected from households and treated at the plant will be used for irrigation of apple orchards.

This type of cycle-oriented society is facilitated through community empowerment under trained leadership of the society as well as by promoting a cluster at the community level. An environment-friendly society is based on the cycle-oriented society.

Development based on Culture and Historical Heritage

The Issyk-Kul zone is endowed with cultural and historical heritage. For instance, the coastal road along the Issyk-Kul Lake, as well as the artery connecting Kemin-Balykchy-Naryn-Torugart Pass is a tract of the Great Silk Road. There still remain some ruins along the Silk Road. Another notable historical heritage is a stone curve scattered mainly in the northern coastal area of the Lake. The area around the Issyk-Kul Lake is registered with UNESCO as a reserved area.

Cultural development should not be limited to the historical heritage. Contemporary cultural exchange is to be promoted with Issyk-Kul serving as a center for exchange of dialogue. The UNESCO-sponsored dialogue for cultural exchange in Eurasia held in Issyk-Kul in July 2004 is a good initiative for promotion of a cooperative framework in the region. It is of great value that Issyk-Kul would serve for the enhancement of cultural development and for the promotion of a convivial society in Central Asia, Eurasia and the world.

Promotion of Regional Cooperation

The Issyk-Kul zone is in a position to offer excellent opportunities for the promotion of dialogue and cooperative regional frameworks. The objective set for Issyk-Kul development, i.e., creation of a healthy and harmonized region, is attainable through contribution to the promotion of regional cooperative frameworks.

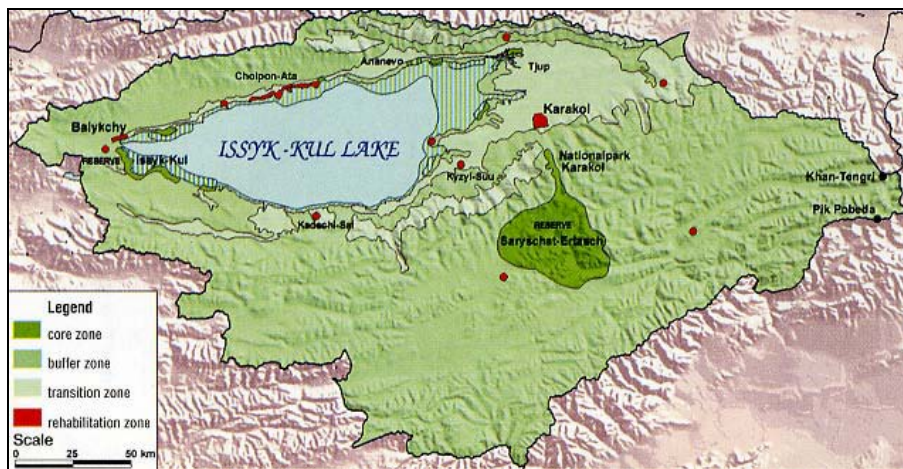
Cooperation in protecting the regional environment and water resources is an example. Although the Issyk-Kul Lake has no outflow of water, the ecosystem is closely related to the surrounding river basins and meteorological data can be utilized for water management of the Naryn River, which is a tributary of the Syrdarya River flowing down through Uzbekistan and Kazakhstan. Regional cooperation is to be promoted for protection of the environment and water resources in Central Asia.

Collective efforts are also expected for joint tourism promotion. As tourism products in Central Asia, as well as in Issyk-Kul, are not well known world-wide, it is planned that Issyk-Kul will take the initiative in enhancing cooperation for joint tourism promotion in Central Asia.

7 LAND USE PLAN AND MANAGEMENT

Restricted Areas

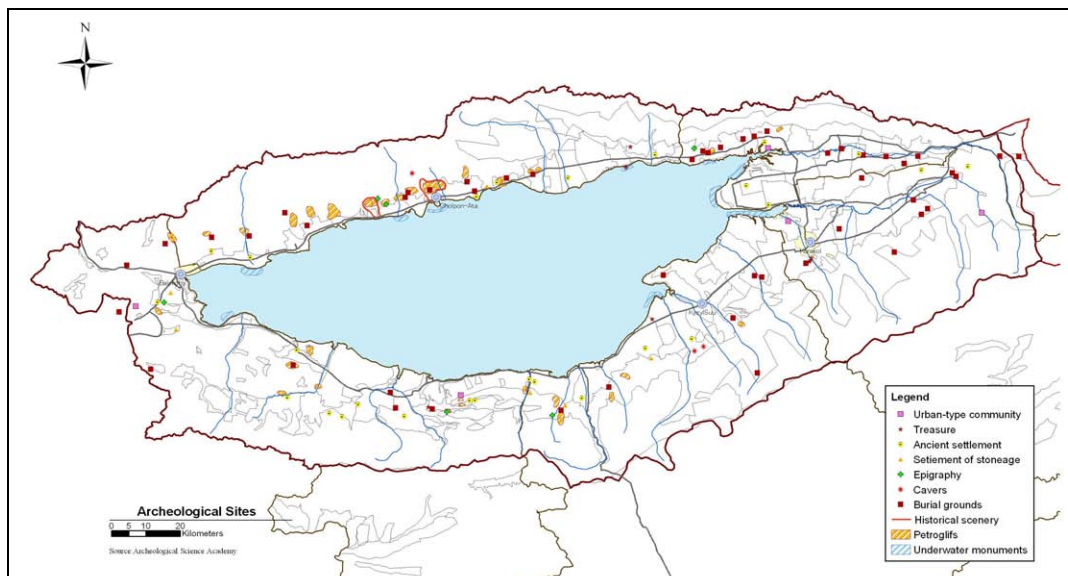
To elaborate future land use in the Issyk-Kul zone under the principle of strategic environmental assessment (SEA), physical conditions and social factors, as well as opinions of stakeholders, have been assessed and taken into account. Hazardous areas in the Issyk-Kul zone have been mapped out, including the seismic hazardous, soil erosion, and snow-slide hazardous areas. Furthermore, the biosphere reserve areas have been identified as shown below, in order to protect the natural environment in Issyk-Kul.



Source: GTZ assisted project “Promoting the Issyk-Kul Biosphere Reserve”

Figure S.12 Biosphere Reserve Zoning

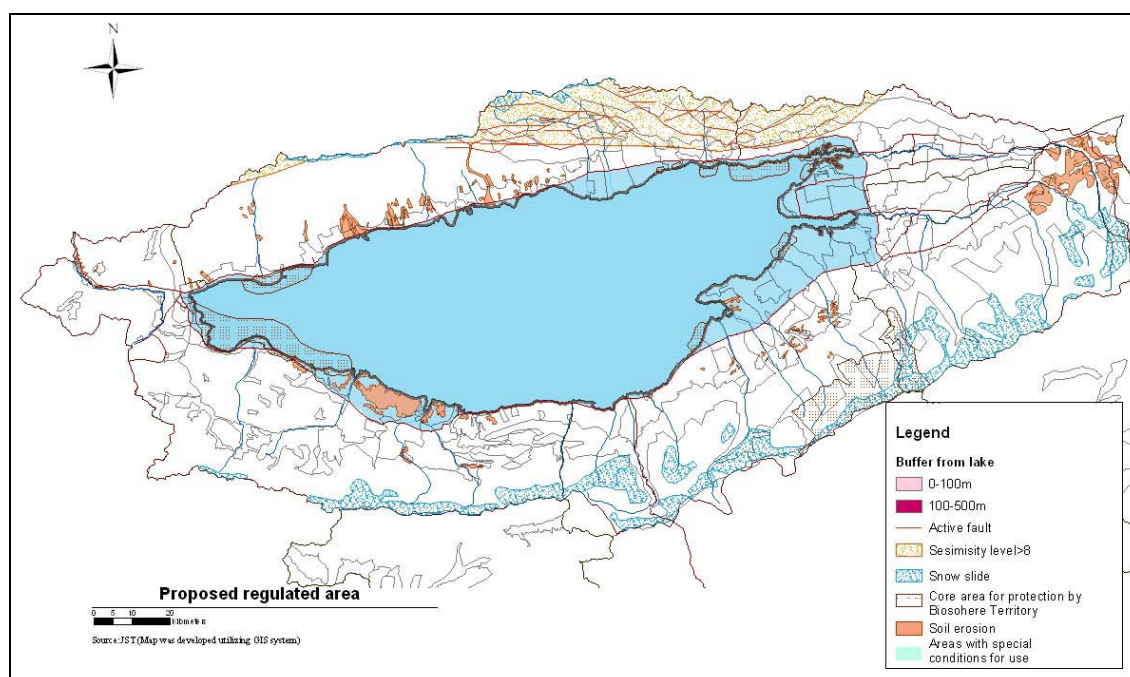
Likewise, the archeological sites identified by the Archeological Science Academy have been mapped out in order to protect cultural and historical heritages in the Issyk-Kul zone, as shown below.



Source: State Institute for Management of Cultural and National Heritage

Figure S.13 Archeological Sites

These regulated and protected areas have been overlaid on the GIS map to indicate land use restrictions in the Issyk-Kul zone, as shown below.



Source: JICA Study Team

Figure S.14 Land Use Restricted Areas

Land Use Plan

Land use restrictions have been combined with the current land use and land ownership, the spatial development framework as noted in Section [5], as well as suitable areas for lake-side resorts. Furthermore, land use regulations by category have been taken into account, and future land use in each category discussed with stakeholders. Consequently, the future land use in the Issyk-Kul zone has been planned as summarized in the table below and as illustrated on the following page.

Table S.9 Future Land Use

Category	Current Land Use	Changes	Future Land Use	Future Land Use by Rayon				
				Ak-Suu Rayon	Issyk-Kul Rayon	Jety-Oguz	Tong Rayon	Tup Rayon
Urban/Settlements	246.6	0.0	246.6	48.0	53.0	64.2	30.0	51.3
Urban reserve	0.0	1.7	1.7	0.0	1.2	0.0	0.5	0.0
Existing resort	29.4	30.4	59.9	0.6	24.2	20.6	8.5	5.9
Resort reserve	0.0	30.4	30.4	0.5	7.2	20.4	2.3	0.0
Irrigated farmland	1,404.6	-0.3	1,404.3	413.1	276.0	385.3	200.2	129.6
Non-irrigated farmland	739.4	-0.9	738.5	132.6	55.1	55.3	103.4	392.1
Irrigated farmland reserve	0.0	6.5	6.5	0.0	3.5	0.0	3.0	0.0
Pasture	6,395.3	-21.4	6,373.9	375.7	2,111.9	715.8	2,704.4	466.1
Forests	455.3	-3.6	451.7	20.0	196.3	119.0	58.9	57.6
Others	97.6	-0.6	97.0	13.2	48.4	7.0	21.8	6.7
Unused land	7,738.8	-42.2	7,696.5	2,240.3	833.2	2,237.4	1,411.1	974.5
Lakes	6,255.0	0.0	6,255.0					
Total	23,362.0	0.0	23,362.0	3,244.0	3,610.0	3,625.0	4,544.0	2,084.0

Source: JICA Study Team

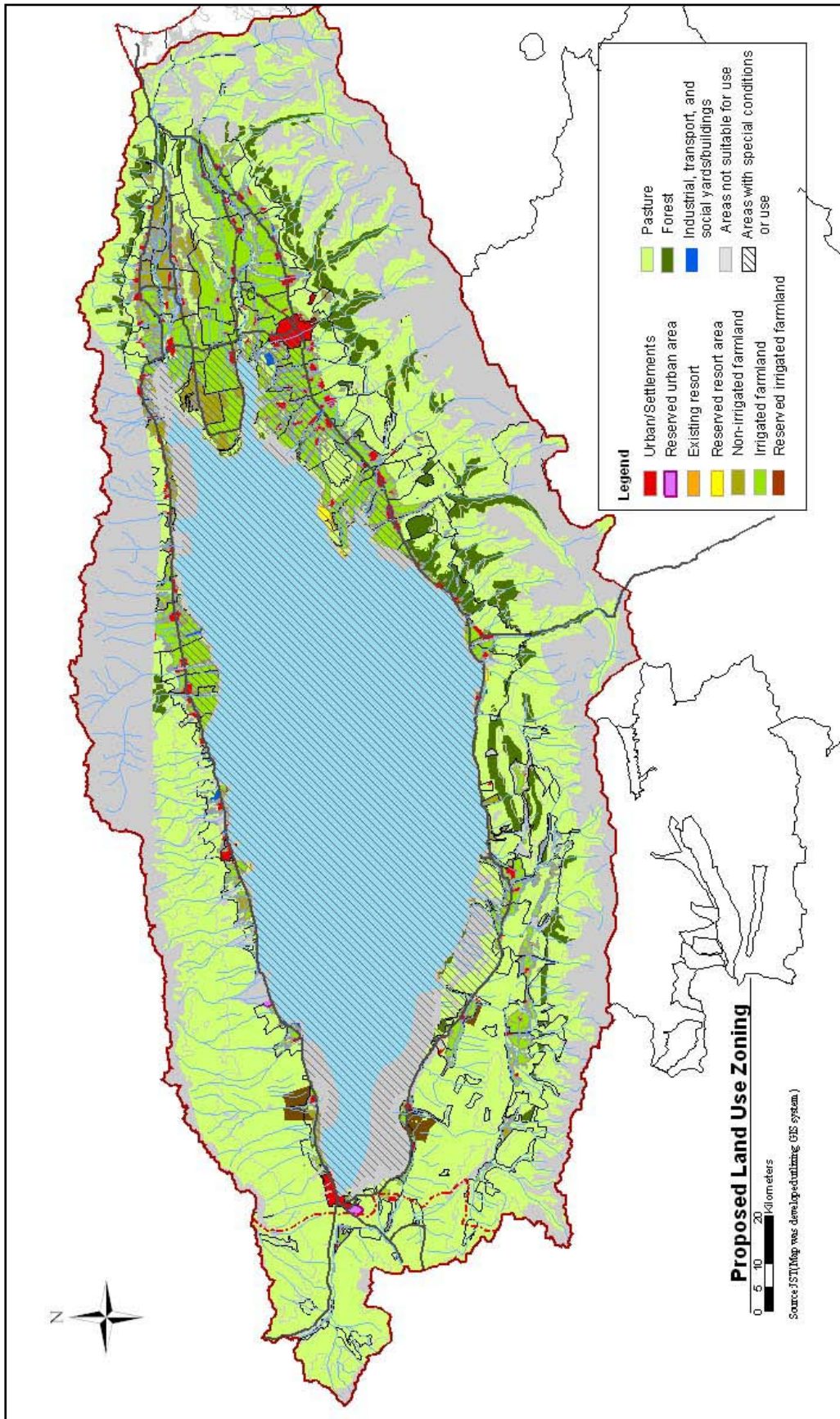


Figure S.15 Future Land Use Zoning

Source: JICA Study Team

Land Use Management Plan

For better management of land use in the Issyk-Kul zone, it is proposed to: (i) introduce some incentives for land use control, (ii) restructure spatial planning systems, and (iii) streamline the procedures for land use permission.

Land use Incentives

Since the land tax is a major source of income for Ayil Okmotu administration, some incentives could be extended. For instance, a higher tax rate may be set on highly productive land while a lower rate may be applied to regain land productivity. For lease of pasture land, on-going efforts may be enhanced to set the prices rationally in a wider context.

Spatial Planning System

The system is to be restructured to fit that currently associated with private land ownership, by reducing the number and depth of pre-planning surveys. The spatial structure of a target area should be better agreed among the upper level administrations and stakeholders, while detailed plans at the district level could be planned thereafter in consultation with neighbors.

Land Use Permission

Stakeholders are concerned about the complicated process of evaluation and approval by the central government. Most procedures may be shifted to the Oblast level administration through capacity building of local experts in assessment works, while the central government may concentrate more on monitoring of the biosphere territory reserve, conservation of historical heritages, observation of the Ramsar treaty, and other governing rules and regulations.

Since the land use plan and regulations have been recently defined for three major urban centers, i.e., Karakol, Balykchy and Cholpon Ata under the auspices of USAID, it is recommended that the land use plan for other centers be prepared by referring to the overall spatial development structure and future land use proposed under this JICA Study.



Photo S.2 Capacity Building in GIS assisted land use planning