

## **Ecosystem approach in basin management in Central Asia: from theory to practice (on the example of Ili-Balkhash basin)**

By Elena Kreuzberg  
Manager of Ecosystem Management Programme  
Regional Environmental Centre for Central Asia (CAREC)  
40, Orbita-1, 050043, Almaty, Kazakhstan  
Tel.: ++7 - 3272 – 785110; Fax: ++3272 - 705337

### **Summary:**

Development of the integrated management plan in the practice of Ili-Balkhash basin (IBB) management, which realized by Regional Environmental Centre of Central Asia (CAREC) within framework of the TACIS Central Asian Action Programme of European Union, supposes study and utilization of international experience in the practice of basin management in Central Asia. This innovative project is directed on the solution of social, economic and environmental problems in Ili-Balkhash region of Kazakhstan by introducing of new management mechanisms and interactions on the instance of one from the biggest lake systems of the planet – Ili-Balkhas basin. The main problems of the basin provoked by irrational use and sharing of water resources which led to the loss of biological resources and agricultural land degradation, ecosystems declining and desertification, and as a consequence to the decrease of living standards of local population and their well-being, are determined by absence of common development aims, lack of longterm coordinated programme for whole basin and fragmented division of power and responsibilities between various sectors. On the recommendation of Public Forum « Balkhash – 2000 » which considered the situation in Ili-Balkash as highly critical, the Concept of the IBB sustainable development based on stabilization of social, economic and environmental situation in the region was elaborated. Realization of this concept will allow to reach conservation and rehabilitation of natural ecosystems in the basin, introduction and development of the environmentally friendly economic activities, sustainable power and agriculture, transport and communication infrastructure for the solution of poverty and unemployment problems, carrying of human capacity. It is expected, that this project will promote the process of decentralization in management and will allow to introduce on practice the principles of ecosystem approach in the management which will secure the sustainable development of IBB under condition of coordinated water management and wise use of wildlife (biological resources).

### **Introduction**

Basin principle of the water resources management, declared in water code of Kazakhstan Republic requires the basic changes of the existing management system either on national or local levels. Therefore the new establishing basin councils and elaborating and implementing principles of management are assigned with big hopes. According to Framework Water Directive of European Union the basin principle will allow to reach the appropriate status for the sustainable long-term use of water-resources. Republic Kazakhstan signed UN Water Convention (Convention on the Protection and Use of Transboundary Watercourses and International Lakes), took the responsibility to use the principles of this Convention for the tranboundary water management and for the building of national system of water management. For the implementation of Central Asian Initiative on the Sustainable Development it is necessary to provide the environmental water inflow for ecosystems needs, to decrease loss of the water in the arable (irrigated) agriculture, to regulate irrevocable specific consumption of water in industry, to solve the problems of potable water supply for inhabitants of cities and countryside. Ili-Balkhash Basin presents the opportunities for the introduction of the basin management principles on the practice in Kazakhstan Republic and allows to elaborate the models of basin management which can be implemented in all Central Asian region.

### **Concept of the IBB sustainable development**

In November 2000, on the public initiative and with governmental and local power support the International Forum “Balkhash – 2000” took place. This Forum ascertained the trouble tendency on the declining of basin: continuing desertification processes, high level of industrial water pollution and tense situation with potable water. Destruction of the systems of irrigation led to the decrease of irrigated lands and decline of agriculture production. Weak development of hydropower, lack and absence of the enterprises for processing of agriculture production, weak development of tourist industry, forestry, hunting manages and fish farming determined the number of economic problems and low income of local populations. Alongside with existing basin problems, there are the external factors presenting threat for the development of region, main of which is the industrial activity of neighboring China in the watershed area and negative consequences of climate change in the region. Forum suggested to develop the

Programme of IBB Sustainable Development. The Concept which was elaborated by CAREC on the order of Ministry of nature resources and environment protection of Kazakhstan Republic resulted the first step of the work. This concept based on the principles of sustainable development and documents approved by World Summit (Rio-de-Janeiro, 1992). For past period the ideology of sustainable development transformed into methodologies of planning and management of territories approbated in many countries. It is based on two main preconditions: requirement of the limiting opportunities of the natural ecosystems and involvement of the all interested stakeholders in decision making. This Concept presented the analysis of key problems of IBB, defined the aims of its sustainable development and main directions of such development taking into account priorities of national strategies and programmes. One of the results of the conducted analysis was the necessity for the improvement of the IBB management system as a key condition for the transmission to integrated planning and management, using the existing capacity of IBB. The Concept proposed also the mechanisms for the realization of IBB sustainable development programme, stages for its implementation and general scheme of work. In general the Concept is directed to reach the following aims:

- Protection and restoration of the hydrological regime of Balkhash lake, natural (terrestrial and aquatic) ecosystems as a main condition for the supporting of the vital activity of the region;
- Development of environmental friendly activity, sustainable power, agriculture, transport and communication infrastructures;
- Development of human potential, preservation of spiritual and cultural welfare, physical health.

#### **Natural and historic feature of IBB**

Ili-Balkhash Basin is the one of the biggest lake ecosystem on the planet and presents the unique natural complex. The basin occupies the vast territory on the southeast of Kazakhstan and northwest of China with area in 413 th. sq. km. Kazakh part is 353 th. sq. km and situated in 4 administrative provinces of Kazakhstan. The biggest mega-police Almaty city, former capital of Kazakhstan is located in the basin. 3285.7 thousand people lived in the basin in the end of XX century, most part of them in the countryside. Basin is the unique on its hydrology and biodiversity, this is the only one place in Asia where all Asian altitudinal zones are presented. The basin is rich by superficial and underground water-resources which promoted development of industry and agriculture. In basin more than 45 thousand rivers, temporary currents and dens with general extent in 118 th. km. The biggest River Ili in the conjunction with Balkhash lake forms the delta with area in 8 th. sq. km, with rich wetland biodiversity and source of forage for live-stock. Besides that, 24 thousand lakes and artificial water-reservoirs are presented in the basin. The Balkhash lake is the third on its size water-reservoir in Kazakhstan. It is divided by narrowing of a hollow and underwater threshold into western part with poorly saltish water and eastern part with high level of water mineralization. Both parts are connected by narrow passage. In spite of big size, Balkhash lake is extremely shallow which is the cause of its vulnerability and fragility.

The economic development of the region was accompanied by a construction of artificial reservoirs: Kapchagai water-reservoir on Ili river, Bartogai water-reservoir on Chilik river and Kurtinskoe water-reservoir. The artificial hydrological network is presented by system of irrigational and drainage channels, where rice irrigating systems used 166 mln. cubic km per year. Ili-Balkhash basin also has the significant reserves fresh underground waters. Their general operational resources are evaluated in 17.5 cubic km, their current use is insignificant and region has the sufficient resources for water supply.

The changes of the hydrological regime of the rivers and water balance of the basin define economic, social and environmental problems. After intensive development of economic activity in the basin, the natural hydrological regime of the Balkhash lake was broken. The basin water consumers in the basin are irrigated lands. When to 1991 the total amount of water consumption increased almost twice, the inflow of water to Balkhash lake decreased that led to degradation of coastal territories, aquatic ecosystems and wetlands. The stability of basin water balance depends also on amount of water coming from China territory. Formed in the catchmen part of the Chinese territory, flow of Ili river was 77% from general drainage in 2000. Currently withdrawal of water and loss of inflow of Ili River in Chinese part of the basin is 4.42 km<sup>3</sup>/year, but withdrawal in 10—15% of the inflow from Ili River will lead to shallowing and salinization of Balkhash lake and will provoke the environmental disaster similar to Aral Sea with serious social and economic consequences. According to forecast the deficiency of water in China will increase every year, therefore withdrawal of transboundary rivers will grow. At present the negotiation process between both countries – Kazakhstan and China – started, and special task force work out the principles for the mutual rational use of the transboundary rivers resources.

The significant mineral resources create the necessary preconditions for the economic development of the basin in the Kazakhstan part. The deposits of color, rare and precious metals, rich reserves of brown coals, raw building materials – cement, marble, sand, rubble, clay for porcelain manufacture, etc. are presented in the basin. However, their development is conducted poorly and quite often with infringements of ecological requirements. Landscape and biologic diversity is also rich in IBB. Wildlife and traditional cattle breeding and agriculture are combined successfully. Fauna of vertebrate animals is presented by 50 mammal species, 269 bird species and more 20 native fish species. Hunting and fishery are developed. Various plant associations are presented on the sand dunes, clayey and saline lands, in aquatic and unique river riparian forests, grasslands, meadows, marshes and swamps. Favorable climatic conditions and plentiful water resources promoted the development of agriculture. The general area of agricultural lands is more 8.18 mln. hectares, among which natural grazing area is 6.53 mln. hectares where herds of sheep, goats, cows, horses and camels are presented. The poultry and pig farming is also developed in the basin.

But last decades, in the result of human development in IBB led to habitats change, overgrazing, fires and other causes, the biodiversity is significantly declined within whole basin area. Especially wetlands and river riparian forests are threatened, 22 vertebrate animal species included in Kazakhstan Red Data Book (1996). Many invertebrates and plants are also under threat, and among them species having important value for plant pollination, plant protection against pests. Worsening of water sources and introduction of alien species led to the decline of fish resources from 30 th. tons per year (including 70% of valuable species) in 1960<sup>th</sup>, until 6.6 tons per year in 1990<sup>th</sup>. Fish stock is not restored till present. Poaching on fish and animals are distributed widely in the region, no practice of sustainable use for plants and animals developed.

Ili-Balkhash Basin is rich by memorials of natural and cultural heritage, the opportunities for the development of scientific and ecological tourism are ensured by exotic plant and animal words, and also the geological sections and paleontological remains, ancient volcanoes and meteoric craters, numerous barrows, ruins of cities on the Great Silk Road, petroglyphes and mysterious Buddhist inscriptions. Six objects from the region are defined as the World Heritage Sites. At the same time, there is a lack of policy for the investments into touristy business development and concrete measures for the conservation of natural, historic and cultural memorials. The base for the development of basin industry is created by colored metals and copper which treated by Balkhash metallurgic and Tekelli lead and zinc enterprises. There are also some other enterprises in the region for the production of porcelain and sugar. In Almaty many other industries are developed such as mechanical engineering, metal working, food and manufacture branches, and other kinds of an industrial output. Electric power, in spite of natural resources presence such as coals, wind and water-resources, is developed weakly and presented by Kapchagai hydropower station, cascade by small hydropower stations and thermal power plant in Almaty.

The basin has the favorable geopolitical situation, the Great Silk Road crossed it in past from west to the east and from north to the south. Transport ways connect the southern regions of republic with its eastern and central parts. Turkestan-Siberian highway and network of railways connect the basin with Russia, other countries of Central Asia, China, Iran. The network of the automobile and air ways is also developed well. At the same time the existing infrastructure needs in reconstruction.

#### **Current problems of the basin development**

Intensive economic activity destroyed the natural regime of the ecosystems functions in the basin. Region having the powerful resources capacity for the energetic has the problems with electric power which is taken abroad with high cost. In this basin rich in natural resources desertification is progressing, there is still a hard situation with supply of drinking water and high level of industrial pollution. Many irrigated areas are not being used any more. The productivity of ecosystems is declined. The area of watered pastures has decreased resulted in a significant reduction of livestock. The development of hydroenergetics has been discontinued with no sufficient grounds, there are no developed networks of agricultural processors, fish reproduction area is very underdeveloped. Tourism is very poorly developed for a basin with a huge recreational potential and the unique natural and cultural monuments. The standard of life is still one of the lowest in the region. Current social and economic and ecological situation in the Basin is in many aspects related to the prevalent executive management system, which is very complex and has weak horizontal and vertical interaction between subjects. The lack of common aims and a basin program, sector and subject disconnection in regard to the single IBB system control, large investment problems when the region is divided in 15 ministries and 4 responsible regions – all this just a part of problems pertaining to existing management system

Economic activity which does not take into account the natural environmental limits, leads to pollution and declining of ecosystems in the basin. Pollution of drinking water by industrial enterprises, especially by Balkhash metallurgic enterprise, waste waters etc., leads to the deficit of the drinking water in the region. The population of the basin in 42 settlements use the imported water, in 403 villages the water taken without clearing. There are also some other serious problems such as the infringements of water-security requirements, flooding and salinization of lands. Absence of long-term objectives and mechanisms of interaction between executive bodies, business and population are the main barriers for long-term investing in the development of the territories. In spite of the significant natural resources and favorable climatic conditions, the region has the most lower level of population income, high level of unemployment, poverty, illnesses. Therefore in the current conditions the main problems of the basin development are:

- Unsustainable use of the water, loss of biological resources, declining of ecosystems;
- Desertification and as a consequence the loss of agricultural lands and their productivity;
- Continuing pollution of the waters in the basin by industrial wastes;
- Weak economic development and absence of the general development goals and long-term programme for the basin;
- Fragmented division of the duties and responsibilities between sectors;

A necessity to improve the management system in IBB as the key for implementation of social and economic and ecological programs, transition to the integrated planning and management of the single system of IBB (including the potential of the Region which is not being used to its full) is obvious. From experience of other countries, the situation can be improved on the basis of basin approach to the integrated management of the Region. With that end in view, it is necessary to provide for a phased development of the basin management of IBB, including the development of management plan based on the world experience of the management of water basins territories (basins of the rivers Rhine and Danube in Europe, Chaudier River in Canada and others).

#### **Priorities for the IBB development**

The priority for the IBB development is the support of the activity having at the same time economic and environmental effect such as depends from the sustainable use of environmental goods and services: tourism, fishery, recreation, captive breeding of commercial fur animals, perfection of the environmental business branches, processing of waste products, involving of renewed energy sources, forestry. This priorities include also manufacture and export of the cheap electric power, processing of ecologically clean agricultural production, thin fleece sheep breeding and fur farming. It is necessary to analyze the perspectives for the development of power with construction of new water and wind power stations, which can cover demands on the electric power in the basin and outside. Improvement of the thermal power and using of gas and fuel will promote the significant development of energetic in general. The development of basic Industry - nonferrous metallurgy - should be based at an estimation of influence of this industry on ecosystems and human health.

In the basin there are some reserves of the water-resources which can be used for stabilization of water balance in the case of its infringement by external factors. First of all, these are the collectors and drainage waters which can be used after corresponding clearing on irrigation. The underground waters (with the reserves in 8.7 cubic km) are the large reserve for the supply of drinking waters. Using of these reserves can improve the environmental situation of Ili River and Balkhash lake. The drainage of the salted and boggy lands will give the economy of water and also will improve environmental conditions. The quality of the superficial waters will be improved by measures for the protection of water sources and realization by prevention measures on three main directions: protection of small rivers, protection of waters of Kapchagai water-reservoir, protection of coastal area of the Balkhash lake.

The potentiality of the agriculture development is also high. The development of corporative management can solve the problems of employment, raising of small, family and house business with dissemination of modern effective technologies which promote the investment of agricultural business and enterprises. The investments will support the restoration of the degraded lands with cultivation of wheat, rice, beat, maize, leguminous, vegetables and fruits. The programme will consider the widening of the irrigated pastures and restoration of forage base in the deltas and valleys of rivers. Stabilization of hydrologic regime and improvement of water quality will provide the necessary preconditions for restoration of fish stock and development of fish breeding farms with captive breeding of sturgeons and trout and conservation of native fish species in the river and lake ecosystems. Development of transport facilities, including reconstruction of automobile ways, air transport and development of passenger sailing charter on Ili River and Balkhash lake, will provoke development of the sustainable ecotourism into

profitable branch of the economy of the basin because among 10 territories designated by national Concept of the tourism development 5 are located in the basin. The development of the protected area network on the base of the basin approach is also one of priorities. Its expansion is based on the new scheme of establishment and accommodation of protected areas formed in view of offers of the public organizations, local power structures and local community. It is supposed to establish 13 new reserves and to improve the system of their management. The next priority is the measures to increase the population employment with the creation of small and medium size enterprises, development of human capacities, health protection, spiritual elevation, environmental culture, education and training of the youth. The important precondition for the successful implementation of reforms is the effectivity of the management system and capacity of administrative potential.

#### **Elaboration of the integrated management plan for IBB**

Taking into account that situation in Ili-Balkhash basin can repeat the disaster that has overtaken the Aral Sea, the European Union has agreed to support the development of new management structure for Ili-Balkhash basin that should prevent a similar disaster overtaking with Balkhash Lake and take into account the long-term interests of population, economy and environment. Proper management of Balkhash Lake and Ili River will not only protect existing biodiversity, ecosystems and the Lake's special structure, but prevent further erosion and desertification in the region and will secure the base for further sustainable development of the region. The project will promote the development of started management decentralization processes. The general aim of the suggested project is the sustainable development of the Ili-Balkhash basin. The specific objective of the Project is to develop and implement the integrated management plan for the Ili-Balkhash Basin with participation of various interested stakeholders: including state authorities - ministries, committees, departments; private sector, NGO-s and local community. Preservation of ecosystems is the necessary precondition for further vital activity of the basin. Social and economic situation of the region depends from the state of the ecosystems, their capacity supporting the favorable conditions for human life and activity. Therefore the main activity will be directed on the prevention of environment degradation. The implementation of project will include:

1. Study of the international experience, modeling and use of local knowledge in the development of IBB management;
2. Involvement of the interested stakeholders;
3. Public awareness and public participation;
4. Creation of the body for the basin management;
5. Elaboration of the basin management plan;
6. Preparation of the draft agreement for the cooperative basin management;
7. Establishment of the technical secretariat.

#### **World experience and opportunity to apply it in IBB**

Study of the international experience suppose the analysis and adaptation to the local conditions of the world experience in the elaboration and integration of such plans in the management of other lakes and river basins. For the effective management of IBB, within the framework of the current project the having international experience will be studied and reviewed. Last decades the basin principles are used in majority of the environmental programmes in the basins of the largest water-bodies. Such approach has been used successfully in environmental, economic and other kinds of the complex rayooning where the main arguments are the increasing of the water factor role in economy and nature resources utilization.

#### **Involvement of the interested stakeholders and raising of the public awareness**

In the base of the IBB management system there was proposed the establishment of the Agency of the Ili-Balkhash Basin. It should cover all Ili-Balkhash Basin within Kazakhstan area, including completely or partially the territories of four administrative regions. The activity of Agency will include the agriculture and forestry, energy and road construction, tourism, health, employment, scientific investigations. The water resources should play an integrated role as the sources for irrigation of agriculture and industrial purposes, supporting the environmental balance in the basin. The Agency could cover the electric power production, irrigation, electrification and water supply, prevention of high water, environmental monitoring, recreation and nature conservation, regulation of superficial drains and involving of additional water resources, land tenure and fishery, construction of roads, development of transport and communication facilities, examination of projects and another. The Agency should have the rights for land ownership regulation, planning and control of activity.

Non-governmental organizations, private enterprises and other interested stakeholders should be involved in project implementation. The realization of project can be achieved better using the most effective market tools, support of innovation, stimulation for the creation of small and medium size

enterprises (especially in the area of agriculture and processing industry), support for the financing of the sustainable use of biological resources, nature conservation and education by private sector. Legislation and other regulation activity which support the involvement of the civil society, NGO-s and private sector, can promote the successful activity of the Agency and achievement of the project tasks.

The aims of the project can be achieved in the active cooperation with local power authorities which form and execute the policy of balanced development for natural, human and industrial capacities. The establishment of dialog between civil society, power structures and private companies will promote the coordinated activity. The first stage of the project supposes the conducting of the analysis of all interested stakeholders which can be involved in the basin management and already have a power for decision making and future basin management (water, energetic, land tenure, agriculture, industry, business, NGO-s, local communities, etc.). All interested stakeholders will form the system of information sharing with delegation of representatives to the basin Agency who will be responsible for coordinated decision making in the basin. In the course of the project implementation the public companies, special seminars and meetings will be conducted on the permanent base that to inform all interested stakeholders with the achievement of project goals and to promote the information exchange and cooperative decision making.

### **Creation of the Body for the basin management**

The special Task Force will work on the project which will include the experts responsible for the coordination of the programme activity and information exchange, creation and updating of database, elaboration of plans and recommendations for the further basin development. The round tables, conferences and training seminars will promote the project activity and allow to evaluate the planned activity. The special Task Force will prepare the base for the activity of IBB Agency which will serve as an effective tool for sustainable, integrated management and intersectoral coordination. The achievement of such task will be based on the evaluation of the current management system including three administrative levels – central (republican), regional and local; modeling of the new organizational structure which will allow to improve the intersectoral cooperation and coordination; and investigation of the social, political, institutional and legislative constraints which determine the current management systems in the basin.

The body of the IBB management (Agency) will involve the representatives of the various sectors, local administrative powers, NGO-s, private sector, main users of water and other nature resources, and also the representatives of the international and donors organizations. In this context the role of Ministry of Economy, budgetary planning, Committee on the Water-resources Management, Ministries of Ecology and Foreign Affairs will be defined taking into account the international experience for the further effective work of the Agency.

### **Development of the IBB management plan**

Development of the Long-term Integrated Management План for IBB will be based on the active involvement of all interested stakeholders in the course of consultative process. This plan will consider the possibilities for the improvement of the existing economic and financial mechanism of the management basing on the taking into account the value of the ecosystems, their goods and services. The development and applying of the environmental rent approach will allow to plan some necessary expenses for the ecosystems conservation in the defining of taxation, customs and other obligatory payments. The formation of new economic and financial mechanisms in the course of the programme realization will require:

- Assessment of the resources and energetic capacity of the basin;
- Evaluation of environmental and demographic potentialities;
- Estimation of the eco-rent potentiality of the water systems of the Balkhash Lake including river networks;
- Re-assessment of the main productive forces in IBB, especially in the regions adjacent to Balkhash Lake, and estimation of eco-rent financial-proceeds of credit for Balkhash and whole basin;
- Substantiation of the integrated scheme of the financial and economic development of IBB and assessment of goods and services of the ecosystems, social and economic needs and opportunities of the region;
- Analysis of the ongoing programmes and projects and trends in social, economic and environmental situations;
- Achievement of consensus between all stakeholders, responsible for the basin management, in the measurable purposes of the IBB development;

- Maintenance of the IBB development plan interaction with long-term plans of the social and economic development of the Kazakhstan Republic, with programmes and projects of neighboring China and Kyrgyzstan;
- Using of the economic and financial mechanisms for implementation of plan taking into account the eco-rent, basin tax system, other innovative approaches which secure the favorable stimulation for sustainable IBB development.

The sustainable basin development will require the serious investment activity. Source for such financing can be state, credit and private capitals, and means received from the user of nature resources. State financing can cover the expenses for reproduction of water resources and nature conservation measures. The private investment and credits can stimulate the development of environmentally friendly enterprises. In the case of the right project realization, the investment activity will support the development of sectoral and intersectoral activity and to increase the total product in 1.6 – 1.8 times, growth of economy, security of forage for interim needs of the region, to provide the employment of local population. The system of coordination and control of the financial resources will provide the steady financing of the mentioned above activity in IBB.

The integrated management plan of IBB will be developed in accordance with its especial features, basing on the proposed initiatives such as “Improvement of the environmental situation, social and economic development of IBB”, Almaty regional programme of activity until 2010; National Plan for the integrated management of the water-resources; other documents. The IBB management plan will be focused on the support of the activity which will promote the economic and environmental effects such as sustainable wildlife management, conservation and restoration of the ecosystems of the Ili River, establishment of transboundary biosphere “Sary-Jas-Ili” nature reserve in cooperation with China and Kyrgyzstan, etc.

#### **Preparation of the project of the Agreement on the basin management**

The development of project supposes the elaboration of the project of the Agreement on the basin management between administrative bodies, civil society, business structures, investors and international organizations. Such Agreement will be based on the analysis of the current legal basis and barriers interfering the ecosystem preservation and achievement of the sustainable development goals; elaboration of the recommendations for the strengthen of the IBB legal status and execution of accepted international obligations and preparation of the agreement as the legal base for the ecosystem management in the basin. Taking into account the transboundary nature of the Ili River there will be considered the legal mechanisms of the international treaties operating in such matters because Kazakhstan ratified 5 Conventions of EEC UN in 2000 in transboundary issues. This agreement will reflect the common achievable goals and legally fix mechanisms for their achievements, stimulation, control and responsibility. It will regulate the sustainable wildlife management and ecosystems conservation in the basin. Perhaps, the new special Law on IBB and Lake Balkhash covering the new model of basin management, economic stimulation of the natural resources use, order of the economic activity, limitations of the ecosystems capacities, etc, will be proposed for consideration.

#### **Technical Secretariat**

Successful solution of the problems for the transmission to more save development of the region can be achieved with modern information and scientific and technical facilities. Therefore the Agency will include the technical secretariat which will operate with modern geographical Information System (GIS) which will support the planning and decision making process reflecting economical, environmental and social aspects of development. The GIS creation is based on the establishment of the united monitoring system in the basin for social, economic and environmental subjects. Technical instruments of the IBB management plan will include the GIS database, applying of the existing models for various purposes and implementation of the IBB Management Plan.

#### **Expected Results of the Project Implementation**

This project will allow on practice to realize many priorities in the sustainable development policy of the region, designed in the programme documents of the Kazakhstan Republic, the main economic, social and environmental directions and to promote their integration in accordance with designated aims and realities of the basin. The experience which will be received in the course of this concept realization can be used for the solution of social, economic and environmental problems in the larger basins of Aral and Caspian seas of the Central Asian region, or in similar conditions of the basin of Irtysh, Ural rivers in Kazakhstan, other water-reservoirs and ecosystems.