

# Policy options

**This section aims to identify feasible policy options that target key components identified in the Causal chain analysis in order to minimise future impacts on the transboundary aquatic environment. Recommended policy options were identified through a pragmatic process that evaluated a wide range of potential policy options proposed by regional experts and key political actors according to a number of criteria that were appropriate for the institutional context, such as political and social acceptability, costs and benefits and capacity for implementation. The policy options presented in the report require additional detailed analysis that is beyond the scope of the GIWA and, as a consequence, they are not formal recommendations to governments but rather contributions to broader policy processes in the region.**

## Definition of the problem

The situation in the sphere of water management remains both regionally and locally contentious. There is no regionally accepted water strategy or effective regional agreements to provide a regulatory framework for the allocation and conservation of river water. The current interstate status of regional water resources and water management infrastructure has not been defined (Mambetov 2003, Nazirov 2003, Nurushev 2003).

Despite considerable efforts by the governments of the region and the international community, the freshwater shortage situation remains critical and is adversely affecting the socio-economic development (ICG 2002) and ecological integrity of the Aral Sea region.

Following the breakdown of the Soviet Union, the five Aral Sea Basin states (excluding Iran and Afghanistan) came to an agreement on the principles of water sharing and in 1992 established the Interstate Water Commission, ICWC. The results of the Commission's activities and recommendations formed the basis of numerous interstate agreements on the use of water resources, including 25 agreements on joint usage and annual agreements on joint usage of the Syrdarya resources for power generation.

International organisations have attempted to resolve the regional problems, primarily those concerning water. Projects executed/ sponsored by the World Bank, UNEP, UNESCO, UNDP as well as a number of research and applied projects funded by INTAS, NATO, TACIS, INCO-COPERNICUS, MACCARTUR have contributed to the understanding of the situation in the region, suggested solutions, and implemented projects with an aim of achieving sustainable development. However, the countries of the region have expressed doubt towards the efficiency of foreign participation, as outlined in the Causal chain analysis.

The actual situation in the region was far more severe than was first envisaged by the region's governments and the international community. Consequently, much of what was planned in the region has not been fulfilled: approximately half the projects which had international financial and technical support have failed (Duchovny 2002a&b).

In the Aral Sea, significant improvements to the Small Sea ecosystem are likely with the construction of the Korakal dam between the Small Sea and the Big Sea. As a result, between 1996 and 1999 the water level of the Small Sea rose by 2.5 m, mean salinity reduced by 14.5%, and a vast freshwater zone formed where freshwater creatures reappeared (Amirbekov et al. 2002).

The transferral of water from Siberian rivers to the Aral Sea Basin is seen as one solution to the freshwater shortage concern in the Aral Sea Basin. A project developed in the early 1980s redirected water from the Ob River via a channel running through the Turgai deflection to Central Asia. However, in 1986 due to pressure from scientists and the public, the project was suspended but has been reactivated in recent years. In Russia, certain ambiguities surround the validity of this project for ecological and economic reasons. According to GIWA experts, the region should not rely upon the transfer of water from Siberian rivers but rather should maximise the efficiency of using the region's available water supplies.

## Policy options

The policy options need to address the freshwater shortage concern through the development of political and legislative measures. The principles of inter-state water allocation in the region were formulated by the SPECA-Programme and presented in a report entitled 'Strengthening cooperation for the rational and efficient use of water and energy resources in Central Asia (SPECA 2004). As determined in this report, water will be allocated among Central Asian states according to the following principles:

- Water resources subject to allocation are summed up in each transboundary river basin as per the agreed list of basins;
- Each state retains the right to use its territorial water resources within its agreed quotas;
- Quotas are adjusted on the basis of mutually acceptable criteria and procedures are addressed in intergovernmental agreements;
- The long-term and seasonal flow regulation of transboundary rivers by storage reservoirs used for irrigation and power generation are subject to agreement. The filling and discharge schedules for storage reservoirs are established to ensure integrated use of water and energy resources and to meet environmental requirements;

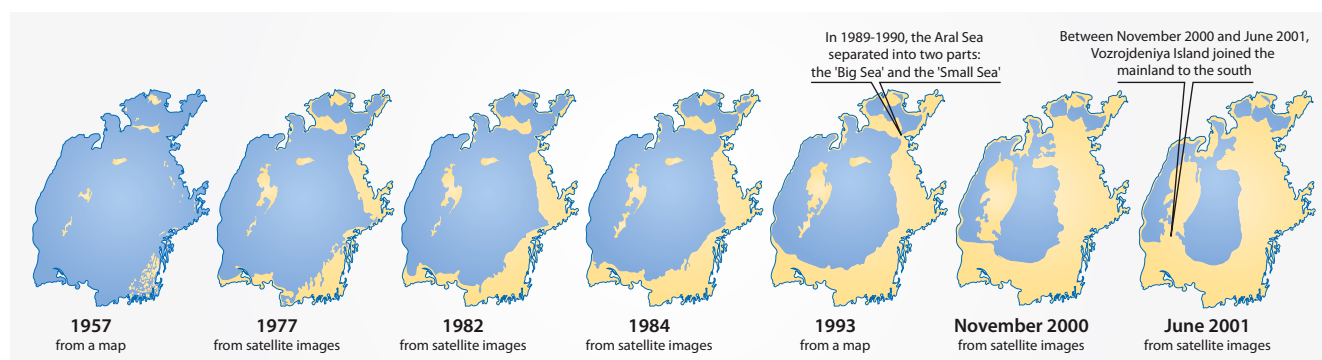
- The schedules governing water intake and discharge at facilities on transboundary rivers and in water-management systems supplying water to neighbouring countries and capable of having transboundary impacts are subject to agreement;
- Water use should not lead to a significant deterioration in water quality in transboundary river basins, and pollutant concentrations should not exceed agreed limits.

The complexity of the freshwater shortage concern and the danger of its spontaneous development are recognised by all relevant parties and efforts to solve this problem continue. In order to increase the efficiency of regional water management there have been discussions on the creation of an interstate water-power generation consortium, with much wider powers than the ICWC.

Although the countries of the region have demonstrated a commitment to solving the freshwater shortage concern, the fact that each of the countries of the region intend to expand their irrigated areas or to construct new water reservoirs to satisfy their own needs indicates an exacerbation of the problem with likely disagreements regarding the sharing of transboundary water resources.

Thus, the problem of sharing transboundary water resources in Central Asia remains complicated. The solution to this problem requires the development of legislative agreements based on the following principles:

- Equal representation of the countries of the region in inter-state agencies responsible for water management, including basin administration. In the interstate management institutions there are practically no representatives from the main water users, i.e. farming and water user associations, industrial and scientific organisations;
- Fairness when allocating water quotas and in the regulation of stream flow;



**Figure 12** Changes in surface area of the Aral Sea.  
(Source: UNEP 2002)

- Obligatory compensation for mutual damage. It is only possible to come to mutually acceptable decisions if this principle is observed;
- Consider ecosystems as an equal consumer of water resources to human uses. Under the existing system of regional water resources management the interests of the environment are considered last or not at all;
- Equal access to information on the hydrometeorological dynamics of all countries in the Aral Sea Basin, including the volume and regime of each country's water abstraction.

## Recommended policy options

### National level

#### Governance

- Revision and enactment of national water strategies, based on the principles laid down in the IWRM. These should be established in accordance with international water law and take into account the interests of all the countries in the region;
- The governments of each country should recognise the importance of interstate (regional) agreements over national legislation and regulations regarding the use of water resources;
- Creation of water user associations with an aim to improve water efficiency, particularly amongst farmers;
- Participation of water users' associations in the decision making process;
- Enhance administrative and legal mechanisms for regulating water use;
- Increase the administrative and legal responsibility of water users for inefficient use of water, particularly in irrigated farming.

#### Knowledge

Initiate and support scientific research in the following fields:

- Monitor natural processes in the run-off formation zone, primarily in the high-mountain belt, where the majority of renewable water resources are formed;
- Develop environmental approaches to water resource management;
- Monitor desertification and landscape degradation dynamics in the zone where the water is predominantly consumed;
- Assess available water and energy resources, forecast future demand.

#### Technology

- Optimise the productivity of agricultural land by assessing the appropriateness of crops for the agro-climatic conditions;

- Adapt water saving technologies for irrigated farming to the specific physical conditions of the Aral Sea region;
- Monitor the soil contamination dynamics and agro-climatic conditions, including through the application of remote sensing;
- Develop technical methods and techniques for the rehabilitation of salinised and highly contaminated soils;
- Increase the efficiency of irrigation systems.

### Regional level

#### Governance

- Revise the interstate legislative framework regarding the sharing and equitable use of the Aral Sea Basin transboundary waters;
- Develop a regional strategy for the integrated management of water and power resources, including the allocation of water quotas and the coordinated control and enforcement of the established water regime based on the IWRM principles;
- Formulate and ratify regional agreements which require shared participation of the countries situated in both the zone of predominant water resource usage and in the run-off formation zone in the management and funding of maintenance of the major water distribution systems;
- Each country should adhere more strictly to the obligations they made when ratifying agreements aimed at addressing the freshwater shortage issues of the region;
- Develop legal procedures for the implementation of the 'polluter pays' principle;
- Create regional databases on the distribution, availability and use of water resources;
- Reform existing, or create new, interstate organisations with sufficient authority to enable the efficient and unbiased governance of regional water and power resources of the Aral Sea Basin.

A solution to this problem is to reform the ICWC by:

- Providing equal representation of all the countries in the ICWC;
- Extend the Commission's mandate to include interstate water and power generation issues;
- Strengthen the enforcement capacity of agreements regarding water quotas and the operation of reservoirs;
- Implement new legislative norms and rules, which express the authority and independence of the ICWC.

#### Economic

- Introduce market prices for water, taking into account the ecological health, water quality and the reliability of its delivery to the consumer. The loss in ecosystem services and the cost of protecting and

rehabilitating ecosystems should be economically evaluated and considered in the pricing system (Khristoforov 2001). This will encourage a more efficient use of water by human activities.

- Develop and introduce economic mechanisms for the regulation of land-water use, protection and improvement in water quality (Babaev 2003, Sarsembekov et al. 2004, Kipshakbaev 2004).

## Conclusion

The transboundary nature of the major basins in the region makes it impossible to solve the freshwater shortage concern without the implementation of inter-state agreements. The adoption of the IWRM principles constitutes the most viable option for the region. A significant

obstacle in achieving the integrated management of regional water resources is the lack of a regional organisation with the authority to facilitate effective and conflict-free management, taking into account the interests of all the countries in the region. A successful solution to this problem necessitates the development of a legislative framework which ensures the equitable use of water resources, whilst preventing unilateral actions capable of changing the hydrological regime of the region. Despite regional disagreements regarding water resources, all of the countries in the region understand the necessity of interstate cooperation in resolving the freshwater shortage issues.