

# Executive summary

This report presents the results of the Global International Waters Assessment of the Caspian Sea drainage basin (GIWA region 23). The geographic boundary of the region is defined as the catchment area of the Caspian Sea which, entirely or partially, covers eight countries: Russia, Azerbaijan, Iran, Kazakhstan, Turkmenistan, Georgia, Turkey and Armenia. The majority of the drainage basin is occupied by the five littoral states: Russia, Azerbaijan, Iran, Kazakhstan and Turkmenistan. The transboundary waters that are identified within the region are the Caspian Sea itself and the Volga River that has a major hydrological impact on the Caspian Sea.

The assessment has been carried out by a multidisciplinary, international expert team that included representatives from each littoral country. Regional scientific centres, such as the Russian Academy of Sciences, the Iranian National Center for Oceanography, the Academy of Science of Kazakhstan, were involved in the assessment. Results were discussed with the Committee for Water Resources of the Ministry of Agriculture of Kazakhstan, the Department of Ecological Expertise within the Ministry of Environment of Azerbaijan, the Ministry of Nature Protection of Turkmenistan, and other local and regional authorities and executive bodies. Representation and active participation of international programmes and projects operating in the region, in particular the Caspian Environment Program (CEP), was also secured.

Assessment of the current situation and the historical trends of each GIWA concern determined that Habitat and community modification exerted the greatest impacts on the Caspian Sea region and was prioritised for Causal chain analysis and Policy option analysis.

The Causal chain analysis and Policy option analysis concentrated on the two issues within the Habitat and community modification concern; loss of ecosystems or ecotones, and modification of ecosystems or ecotones including community structure and/or species composition.

The four most important immediate causes were identified as:

- Pollution as a result of oil spills and agricultural discharges;
- Introduction of invasive species, such as the comb-jellyfish *Mnemiopsis leidyi*;
- Poaching of valuable species and unsustainable harvesting practices in the fishery;
- Damming and regulation of stream flow of rivers discharging into the Caspian Sea.

The most important sectors responsible for those immediate causes were:

- Agriculture (fertiliser and pesticide run-off and the construction of irrigation systems);
- Fisheries (overfishing and introduction of commercially valuable species, feeding organisms and accidental introduction);
- Industry;
- Transport;
- Energy production.

The root causes primarily responsible for the immediate causes were:

- Access to technology (bad equipment especially old oil wells and pipelines);
- Availability of cheap, but obsolete insecticides and absence on the local market of environmentally acceptable alternatives;
- Absence of facilities to decontaminate ship ballast water tanks and ship hulls;
- Poor expert advice on fish quotas, inadequacy of laws and administrative regulation and equipment for the above mentioned sectors;
- Failure to consider environmental factors when regulating the flow of streams by dams;
- Extraction of water from rivers discharging into the Caspian Sea;

- Poor public participation and environmental awareness among stakeholder groups.

Several policy options, which can be grouped according to their specific targets, were developed to address these root causes.

1. Establishment and strengthening of regulations to control environmentally damaging activities in the region. These should be focused on:

- Establishment and/or strengthening of control of the sale of prohibited chemicals at the municipal level;
- Monitoring of leaks from active and blocked oil wells and oil pipelines;
- Restructuring and institutionally strengthening those organisations responsible for the monitoring and control of fishing activities in the region;
- Implementation of environmentally sound operations of stream flow regulation.

2. Creation or refurbishment of facilities such as:

- Refurbishment of old oil wells, pipelines and old water purification systems;
- Development or improvement of devices that facilitate the migration of anadromous fishes;
- Create a facility to decontaminate ship ballast water tanks and ship hulls.

3. Socio-economic actions such as:

- Supply the local market with cheap, effective and environmentally acceptable chemicals through the provision of tax incentives rewarding the importation of these chemicals;
- Develop a system of incentives for using “green technologies”.

4. Science and education such as:

- Provide ecological training at various levels, including via television programmes aimed at a broad audience;
- Ensure autonomy and independence of scientific experts from government authorities and the fishing industry;
- Conduct training of fishery inspectors and carry out further scientific investigation of the impact of fishing and the introduction of alien species;
- Build the capacity of staff responsible for the operation of dams by conducting training courses in the use of environmentally sound technology.

These policy options are intended for the scientific international community, local, regional and international decision-makers, funding bodies and the general public for consideration though, at present, there is a weak civil society, neither sufficiently organised nor powerful enough to act as a key stakeholder.