

COUNTRY BASELINE STUDIES

MEDITERRANEAN REGION WATER, WETLANDS AND CLIMATE CHANGE

TURKEY BASELINE REPORT ON CLIMATE CHANGE

EXECUTIVE SUMMARY

The World Conservation Union (IUCN) has developed a collaborative programme to assist member countries to better integrate climate change considerations in their water and wetland resource management policy and practices; and, to advance climate change adaptation planning complying with the United Nations Framework Convention on Climate Change (UNFCCC) and compatible with the provisions of the Ramsar Convention. Under the Mediterranean component of the programme, the present country baseline study has been prepared for Turkey.

The main objective of Turkey's environmental policy is defined as environmental protection and improvement towards sustainable development which can only be achieved by developing and preserving the natural resources. This policy requires the rational management of natural resources whilst ensuring the protection of human health.

In this report, the country context giving an overview of the climate, variability and change, as well as the natural resources situation are presented in the first part. In the second part institutions/processes and networks relating to water, wetland and climate change issues are analysed putting emphasis on national and international activities of Turkey. Section three gives an outlook for the integration of water and wetland resource management policy and practices with regard to climate change. Finally the last section on adaptive strategies focusses on what needs to be done as far as policy setting and measures to be taken are concerned.

Turkey, located in the Mediterranean basin and surrounded on three sides by the Mediterranean, the Aegean and the Black Sea has a total land area of 780 600 km²; its littoral totals 8333 km. Situated in the temperate zone, she has various climate types in different regions. A Mediterranean climate prevails in Turkey's Mediterranean and Western Anatolian regions, a temperate climate with high precipitation in every season along the Black Sea coast, a continental climate in the inland regions and a semi-arid climate in Central and Southeastern Anatolia. Most precipitation occurs in the winter months. Total annual rainfall is least in the low-lying areas of eastern Anatolia (220mm), and highest along the eastern Black Sea coast (2420mm). The average annual rainfall for the entire country is 643mm, generating a water potential of 501 billion m³/year. Turkey has an average runoff coefficient of 37% corresponding to 186 billion m³/year. Although water resources in Turkey are considered to be sufficient compared to the world average, with an annual ratio of approximately 2000 m³/capita, the resource availability does not coincide with the demand in time and in place. Situated at the crossroad of three continents the country has rich biodiversity; where mountains, steppes and wetlands constitute the main ecosystem types.

According to the Hadley Center climate model, Turkey is predicted to be affected by the climate change resulting in a change in annual mean temperature of about 1.5 °C by the year 2050. A drastic decrease is expected for winter precipitation just over Turkey according to the recent assessment for Europe. The figures related to climate-related natural hazards indicate that flooding on major rivers and flash floods in built-up areas on small streams, cause significant damages in most of the cities and towns of Turkey. Climate model scenarios predict that Turkey's arid land would be affected by climate change declining to desertification.

Turkey has not become yet a signatory to the UNFCCC. A formal amendment proposal was made at the Hague Conference requesting the deletion of Turkey from Annex II and retaining its name in the Annex I list, subject to the condition that Turkey should enjoy favorable conditions in accordance with the 'common but differentiated responsibilities' principle of the UNFCCC, taking into consideration the fact

that Turkey is at an early stage of industrialisation. This proposal was accepted with consensus in 2001 at the Marrakesh Conference.

Turkey has started activities related to climate change issues at national level after the Rio Summit held in 1992. More than ten institutions are directly involved in these activities. Coordination between local governmental institutions as well as international cooperation are ensured by the Ministry of Environment. National activities are realised through working groups formed by representatives from institutions concerned. These are mainly:

- ? The National Climate Coordination Group
- ? The Coordination Committee on Climate Change
- ? The Specialised Commission on Climate Change

Climate change is an emerging issue and according to various studies, it may have serious consequences and adverse impacts on natural resources affecting vulnerable ecosystems, human life and health and socio-economic sectors. Although being aware of the situation, at present, there is no legal provision introduced into the regulations by the government, directly aiming at reducing and/or limiting emissions of greenhouse gases. However, there are a large number of laws and other legal instruments pertaining to environmental protection and energy conservation that intend to reduce such emissions indirectly. The situation is similar when the impact of climate change on water and wetlands is concerned. As yet, no legal mechanism exists taking into account climate change issues in water resource planning and wetlands preservation. The applied practices are limited to protection, mitigation and emergency measures caused by natural hazards. There is no disaster warning technology being applied in Turkey for flood hazard. There is no automated disaster information system to effectively communicate needs and capabilities during and immediately following a disaster. Climate change adaptation strategies do not exist either in the regulations.

National policies and measures should be developed jointly by implementing the following three major strategies so as to mitigate the adverse impacts of climate change. These should be:

- ? Emergency measures
- ? Adaptive strategies
- ? Long-term strategy

As a first step, it will be of utmost importance to focus on mitigation measures comprising hazard reduction plans relating to water resources management and wetland protection:

- ? Basin flood protection
- ? Modernisation of monitoring, forecasting and warning systems
- ? Investment in flood protection infrastructure improvement
- ? Flood and landslide risk reduction and mitigation
- ? Improvement of disaster response capabilities
- ? Measures related to floodplain mapping and landslide prone area mapping for land-use management
- ? Drought preparedness in semi-arid regions
- ? Less-water consuming technologies in irrigation in drought-prone areas
- ? Mitigation projects to minimise impacts of climate change on wetlands (eg. deltas, lagoons, marshes)
- ? Environmental impact assessment taking climate change impact into consideration when designing water projects (e.g. dams, irrigation projects)

At present, a national policy considering the climate change impact on long-term water resources planning (e.g. irrigation, beneficial use of water resources, wetlands) is missing in the management tools. However concerns related to the climate change issues stipulated in the report of the 'Specialised Commission on Climate Change' will take place in the development plans of Turkey for the first time and for the period of 2001-2005.