



Water Resources and Flood Risk Management

Introduction

Climate change is predicted to have a major impact on water resources and flooding around the world. In the Turkey, for example, climate change will be associated with more extreme weather. Warmer, wetter winters and hotter, drier summers will cause increases in winter flooding, summer drought and year-round flash flooding.

It is essential that the impacts of climate change are incorporated into water resource plans and flood risk assessments now as its effects are already being felt. Although individual events cannot be attributed solely to climate change, extremes of recent years can be expected to occur more frequently in future.

With detailed knowledge and practical expertise in both water and climate, Gentek is ideally placed to deliver solutions to client problems across the sectors of both water resources and flood risk management.

Outputs we deliver

Gentek provides clients with a broad portfolio of services:

- Data analysis and modelling for surface and groundwater flow
- Water resource planning and management flood risk assessment (strategic and local)
- Stakeholder and expert consultation, including facilitation solutions for realising adaptation
- Prioritisation and optimisation of responses
- Climate-proofing long term strategies and investments
- Advice on the management of uncertainties

Our approach

Gentek helps our clients manage risks presented by climate change. We provide practical services and solutions to often complex problems and deliver clear, evidence-based outputs to technical and non-technical audiences.

Flood risk management

We provide advice on the inclusion of climate change in assessments of flood risk. As well as day-to-day advice to flood risk modellers and design teams within Gentek. Gentek has completed studies for the Hydraulic State Agency scenarios and an assessment of the impacts of climate change, including storm surges, on the Kizilirmak. Our work incorporates literature reviews, gap analysis and research recommendations, as well as facilitation of experts.

Our key skills enable us to consider our interaction with the water environment right across the water cycle including:

- water resource planning, developing new resources and abstraction licensing
- water efficiency and demand management
- flood risk assessment and the use of sustainable drainage systems
- discharge consenting and water quality assessment
- environmental and sustainability appraisal programme and project management

Client

Hydraulic State Agency
Ankara

Project Name: Urfa left Bank Irrigation Project, 2000

Services:

- Rehabilitation of existing channels
- Establishing of SCADA system
- Flood Management
- Rehabilitation of pumping systems
- Ground water control and Designing of new drainage systems
- Water flow simulation (by software)
- Hydraulic Modelling



This project is the irrigation component of the Ataturk Dam Project, the largest hydropower project that is currently being developed in Turkey. Once it is completed, a dam with a height of 167 meters on the Tigris in East Turkey will create a reservoir with a length of 497 kilometres and a surface area of 1662 square kilometres. The total cost of the Irrigation Project is budgeted to reach \$1.2 billion, funded by the Turkish government.

Client

Hydraulic State Agency
Ankara

Project Name: Tunca River flood Management, 2001

Services:

- Computer based River flow modelling
- Flood Management
- Sedimentation management and telemetric trap design
- Under ground water control
- Water flow simulation (by software)
- Hydraulic Modelling

For flood risk analyses, MIKE NAM and MIKE FLOOD were used. The deterministic hydrological MIKE NAM model was used for rainfall-runoff simulation.

