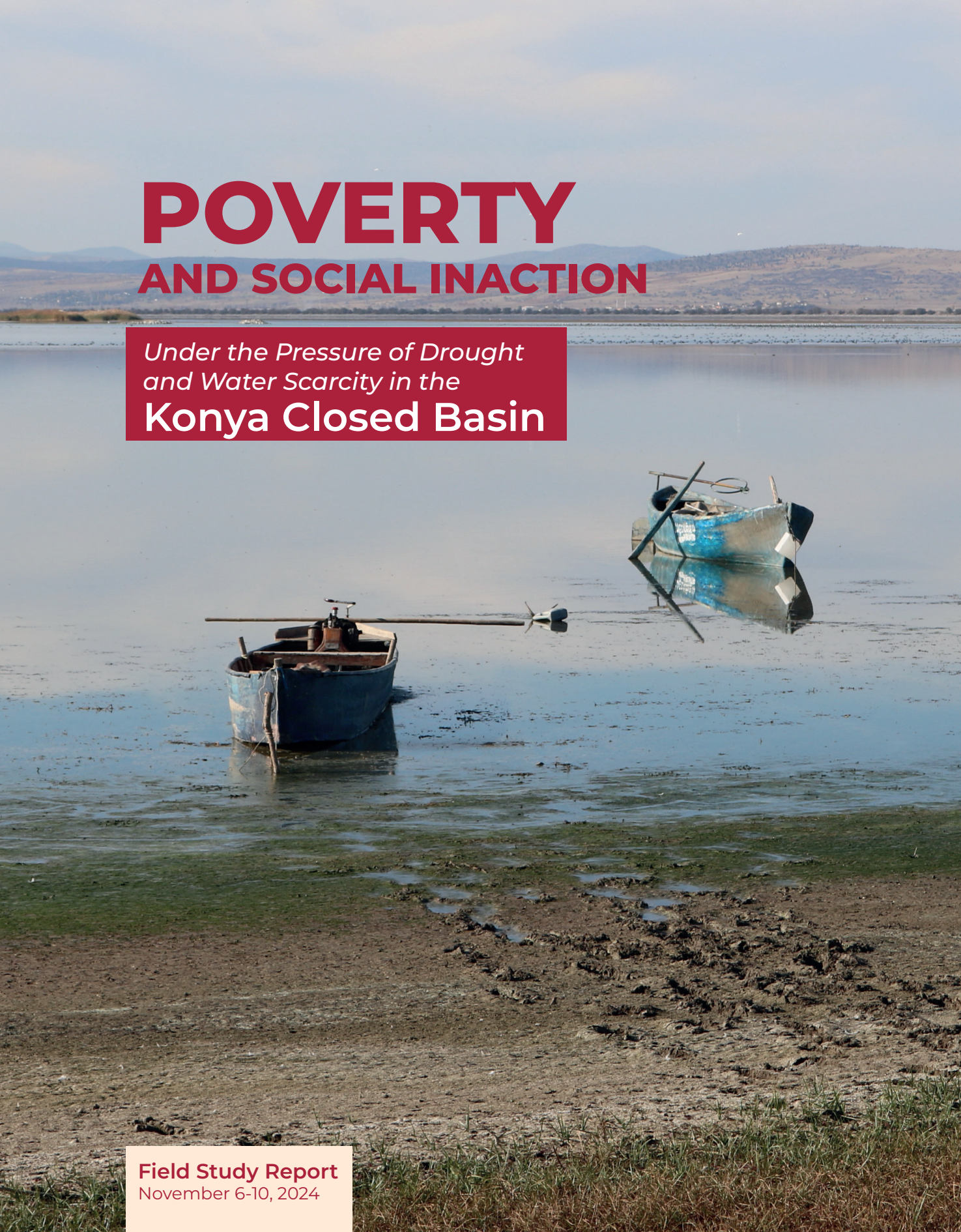

POVERTY
AND SOCIAL INACTION

Under the Pressure of Drought and Water Scarcity in the
Konya Closed Basin

Field Study Report
November 6-10, 2024

POVERTY
AND SOCIAL INACTION

Under the Pressure of Drought and Water Scarcity in the
Konya Closed Basin

Prepared by

Özgür Çetinkaya
Ertan Karabıyık
Kurtuluş Karaşın
Dilek Kaya

Cover Photo

Kurtuluş Karaşın / *Konya-Beyşehir Lake, 2024*

Design

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This Report was prepared by Özgür Çetinkaya, Ertan Karabıyık, Kurtuluş Karaşın and Dilek Kaya, experts from the Development Workshop Cooperative, with the financial support of Ayşe Kudat, through the Research Institute on Turkey (RIT).

RIT Research Institute on Turkey

DEVELOPMENT WORKSHOP

Development Workshop Science Culture Training Research Implementation Production and Enterprise Cooperative
Çankaya Mah. Üsküp Cad. No: 16/14 Çankaya - Ankara
+90 (553) 211 38 97

kalkinmaatolyesi
kalkinmatolyesi
info@ka.org.tr
www.ka.org.tr

Meke Lake, Karapinar/Konya

Introduction

The Development Workshop has been developing research and projects on the impacts of climate change and related sudden weather events on seasonal mobile agricultural workers since 2019. Furthermore, it conducted a field study on the consequences of the long-term drought in the northern provinces of Syria between 2005 and 2010, involving Syrian households who migrated to Türkiye and were affected by this process. In recent years, sudden weather events, drought, and water shortages have been high on Türkiye's agenda. Drying lakes, new solutions for water shortages in cities, warnings to farmers about water use, and restricted water use for irrigation are almost daily topics in the media.

Drought and water shortages have affected rural and urban areas, drying up streams and rivers and damaging dams and lakes. Irrigation-intensive agriculture has begun extracting groundwater more deeply, increasing costs and raising concerns among local authorities, experts, and farmers.

Thanks to the financial support of Ayşe Kudat and the Research Institute on Türkiye (RIT), the Development Workshop conducted a field study in the Konya Closed Basin from November 6 to 10, 2024, to develop a response to the drought. Ayşe Kudat could not participate due to health problems and was replaced by her volunteer assistant, Dilek Kaya. Two social development specialists and one visual data specialist participated in the fieldwork on behalf of the Development Workshop.

The fieldwork aims to understand the effects and consequences of Türkiye's long-standing drought, such as the drying up of lakes and deep groundwater extraction, and to explore what we can do as the Development Workshop.

The fieldwork lasted four days. Representatives of relevant public institutions, professional organizations, research centers, development organizations, and farmers were interviewed; irrigation facilities and natural and dam lakes were observed, and visual documentation was performed with photographs and videos.

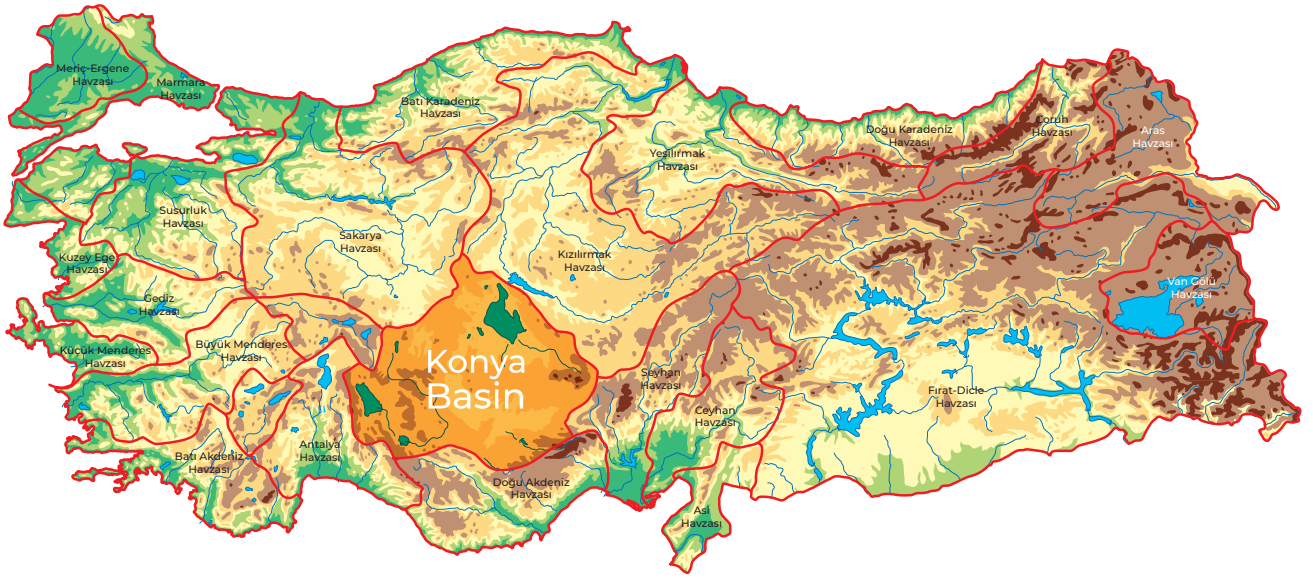
Fieldwork Questions and Themes

- What is the current state of water resources in the Konya Closed Basin? What are the problems experienced in recent years?
- What are the dimensions and causes of hydrological, meteorological, agricultural, and socio-economic drought?
- What can you say about the drought in the near future of the basin?
- What are the most critical impacts of drought in the basin? What are the most important consequences?
- What do you, as an institution, do to use water resources efficiently? What do other institutions do?
- What are the social problems caused by drought in the region? How does it affect migration?
- What impact does the drying up of lakes have on the region?
- What is the latest situation regarding the Mavi Tünel (Blue Tunnel) within the scope of water transfer to other basins to efficiently use water resources? What do you think about developing new water resources? What is being done to use existing water resources more effectively?
- Is there a social reaction to the drought? If yes, how do these social reactions take place?
- There is public awareness about sinkholes. What is the impact of sinkholes?

Konya-Cihanbeyli countryside

About the Konya Closed Basin

Konya Closed Basin (KCB) is the third largest basin among the 25 basins in Türkiye, covering an area of 4 million 980 thousand hectares. The basin is divided into nine sub-basins. A large part of the basin is covered by a flat plain with an average elevation of 900 to 1,050 m, forming the Central Anatolian Plateau. Of the 398 mm of average annual precipitation in the basin, 15 percent goes into surface runoff, collected only in lakes and wetlands.



The main characteristics of the KCB are as follows:

- 27 million decares of agricultural land and 13 percent of irrigable land,
- 2 billion 400 million m^3 of groundwater and 5 billion 950 thousand m^3 of surface water, totaling 8 billion 350 million m^3 of water potential,
- 8 percent of Türkiye's surface area and 13 percent of irrigable land,
- 4 percent of Türkiye's population (3.3 million).

Konya Closed Basin is known for the mountains and plains surrounding it. Lake Tuz, a large lake on the basin's surface, plays a vital role in the region's water balance. Lake Tuz is the largest salty lake in Türkiye, and its water level drops in the summer months, creating large salt fields.

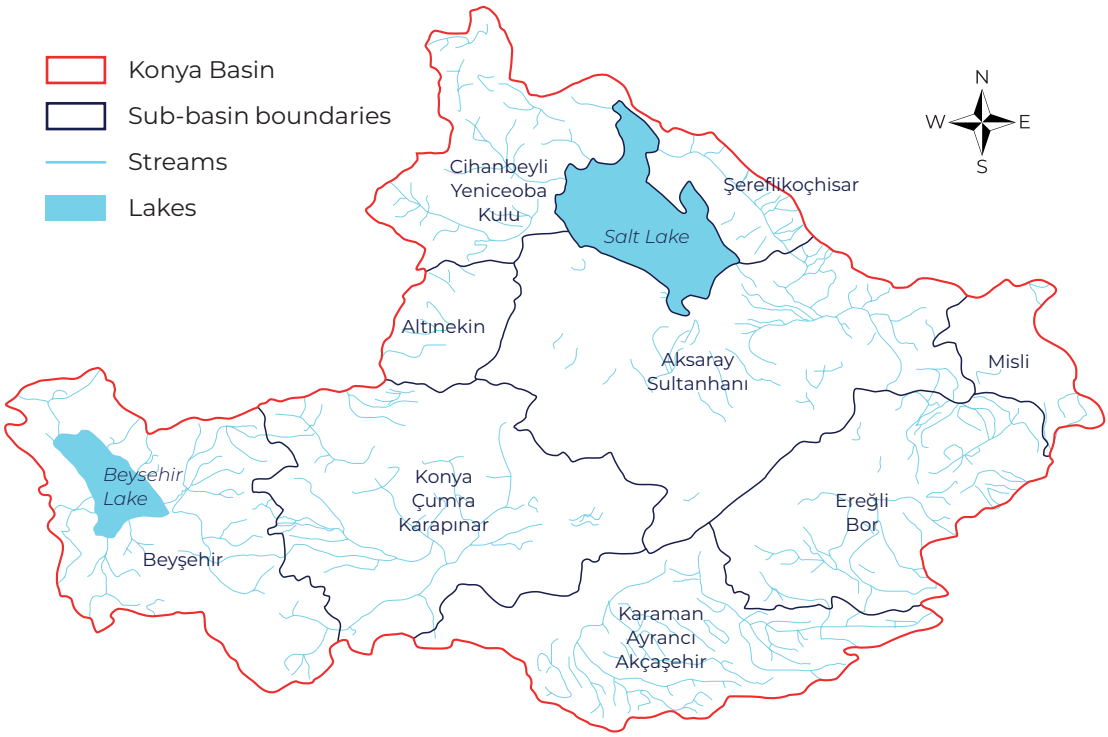
Cereal cultivation, especially wheat and barley, is widespread in the KCB. Sugar beets and vegetables are also harvested. However, due to limited water resources, irrigation systems and water management issues are essential in agriculture. Water management and environmental issues are becoming increasingly significant in the KCB. Problems such as declining groundwater levels, degradation of ecosystems, and soil erosion threaten this region's sustainable development.

Konya-Beyşehir Lake

Water Resources in the Basin and Impacts of Drought

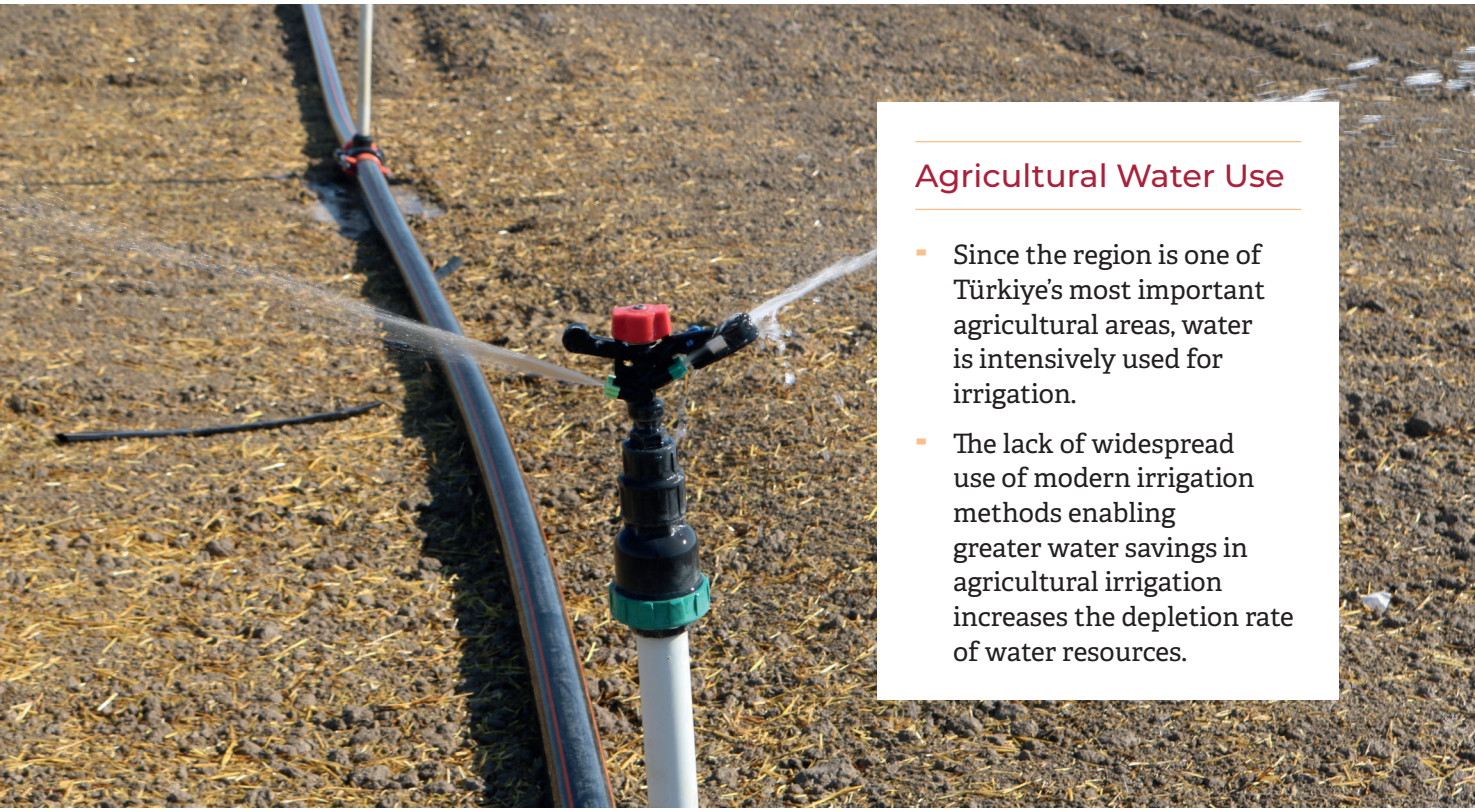
The average annual rainfall in KCB is 398 mm/year, 70 percent of Türkiye's average of 574 mm. Some parts of the basin receive less than 250 mm of precipitation. Although there are 8.35 billion m3 of underground and surface water resources in the basin, only 4.3 m3 is usable—more than this is used due to uncontrolled groundwater wells.

The Konya Closed Basin is the largest closed basin in Türkiye and is considered a critical region in terms of water resources. However, in recent years, increasing drought, water consumption by agricultural activities, overexploitation of groundwater resources, and climate change-related impacts have severely pressured the region's water resources.



Groundwater Levels

- There is excessive groundwater exploitation for agricultural irrigation and domestic water needs.
- Groundwater levels have fallen drastically, and some wells have dried up completely.
- This situation increases the number of sinkholes *(pits formed by the collapse of underground cavities)*, especially in the Konya Plain.



Agricultural Water Use

- Since the region is one of Türkiye's most important agricultural areas, water is intensively used for irrigation.
- The lack of widespread use of modern irrigation methods enabling greater water savings in agricultural irrigation increases the depletion rate of water resources.

Drought and Climate Change

- Due to climate change, irregularities and a decrease in precipitation regime are observed.
- The amount of precipitation in the region has significantly decreased in the last twenty years, starting from the 2000s, and this has also affected dam occupancy rates.
- Precipitation below seasonal norms exacerbates the drought problem.

Ponds and Dam

- Falling water levels have reduced ponds and dams in the basin to critical levels, and most lakes have dried up.
- The drought has severely affected Lake Tuz and Lake Akşehir; a large part of the lakes have dried up.

Impacts on the Ecosystem

- Wetlands in the region are significant for biodiversity. However, many wetlands have completely dried up or are about to dry up.
- This situation negatively impacts agricultural production and ecological balance in the region.
- Soil Salinization: When there is insufficient irrigation water, soil salinization increases, reducing agricultural land productivity.
- Microclimate Changes: The drying up of wetlands and the reduction of green areas cause regional temperatures to rise and the climate to become drier.

Impacts on Agriculture and Livestock

- Yield Loss: Drought significantly reduces agricultural yield.
- Cost Increase: Farmers face rising expenses as they need to drill deeper wells or transport water via tanker.
- Livestock Production: Reduced pasture grazing capacity adversely impacts animal husbandry, leading to higher feeding costs and decreased production decreases.

Socio-economic Effects

- Migration: Reduced agricultural output affects income in rural areas, prompting a shift towards urban centers.
- Unemployment: The loss of jobs in agriculture heightens economic struggles in the area.
- Trade: Since the regional economy heavily relies on agriculture, drought hampers trade and economic activity's dynamism.

The Measures Implemented

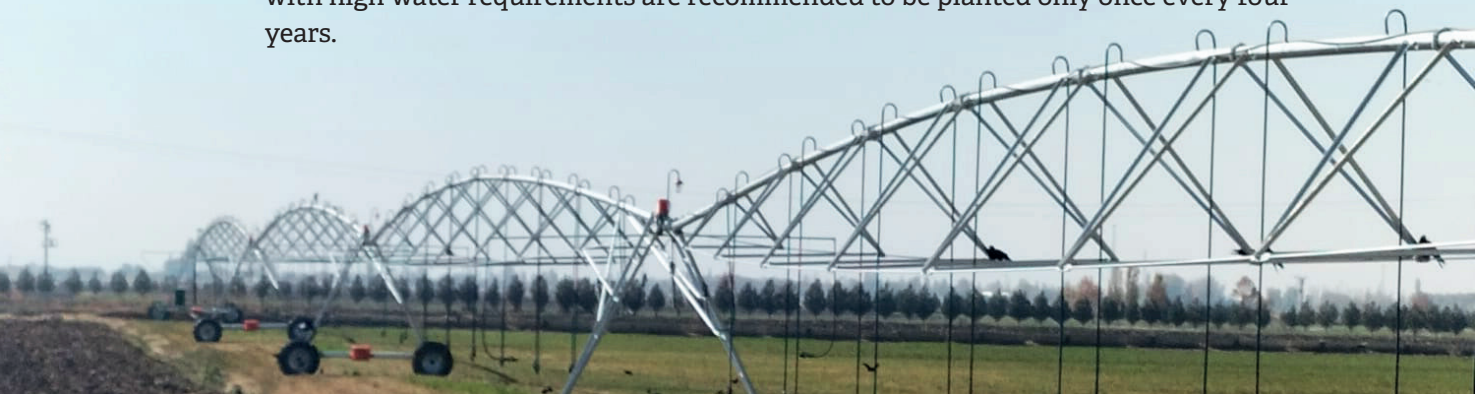
Numerous institutions are taking various measures to address the drought and maintain the sustainability of water resources in the KCB. Nonetheless, there needs to be more debate over the effectiveness and extent of these initiatives and their adequacy in resolving the issue. Below are some current and suggested measures:

Utilization of Modern Irrigation Techniques

- ***Drip and Sprinkler Irrigation:*** Drip irrigation and sprinkler systems are encouraged to minimize water loss in agricultural irrigation. These techniques offer considerable water savings over conventional irrigation methods..
- ***Support Programs:*** Financial incentives and training initiatives are established to assist farmers in transitioning to these systems.

Agricultural Production Planning

- ***Drought-Resistant Crops:*** The cultivation of crops that need less water and are resilient to drought is promoted.
- ***Planting Area Planning:*** Priority is given to reassessing agricultural production zones according to available water resources. For example, efforts are being made to restrict the cultivation of water-intensive crops and appropriate subsidies are planned. Crops with high water requirements are recommended to be planted only once every four years.



Groundwater Management

- ***Water Well Authorization Restrictions:*** Inspections are becoming stricter to stop unauthorized drilling of new water wells. The goal is to oversee existing wells using measurement systems.
- ***Groundwater Replenishment:*** Plans are underway for controlled recharge projects using dams and surface water to replenish groundwater reserves naturally.

Protection of Wetlands

- ***Lake Tuz and Other Wetlands:*** To avoid the depletion of Lake Tuz and neighboring wetlands, it is advisable to implement regulated water transfers to the area.
- ***Wetland Management Strategies:*** Plans are being developed to safeguard ecosystems and preserve biodiversity.

Dams and Water Storage

- ***New Dams and Ponds:*** New dams and ponds designed to capture rainfall in the area are being constructed.
- ***Efficiency of Existing Dams:*** Plans are in place to enhance existing dams by minimizing evaporation and leakages.

Public Awareness and Training

- ***Water Conservation Campaigns:*** Campaigns are designed for farmers and urban residents to promote awareness about water conservation. Yet, the effectiveness of these initiatives is not viewed positively.
- ***Training Programs:*** Farmers receive training on contemporary irrigation techniques and drought-resistant farming practices. Nonetheless, these training sessions are reported to be of limited utility.

Water Transfer Projects

- ***Water Transfer from Adjacent Basins:*** Projects to transfer water from neighboring basins of the Konya Closed Basin, such as the Blue Tunnel Project, have been initiated. This project aims to channel Göksu River water for agricultural irrigation.

Renewable Water Resources

- ***Wastewater Recycling:*** Treatment and reuse of domestic and industrial wastewater is
- ***Rainwater Harvesting:*** These systems are designed to channel rainwater into underground storage.

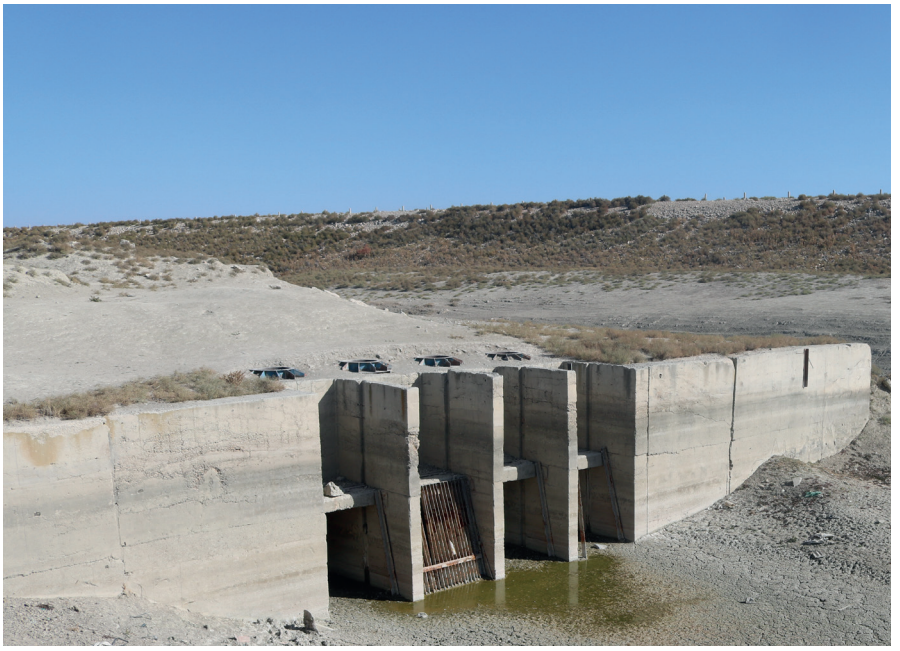
Responding to Climate Change

- ***Reducing Carbon Emissions:*** The goal is to lower carbon emissions associated with agricultural and industrial activities in the area..
- ***Climate Adaptation Strategies:*** Plans are being developed to assist the region adapt to the long-term effects of climate change.

Challenges and Shortcomings

- ***Inspection Deficiencies:*** Current inspections for unauthorized groundwater use need more effectiveness.
- ***Financing Problems:*** More financial support must be needed to expand modern irrigation systems.
- ***Lack of Awareness:*** Public awareness regarding water resource protection and conservation needs to be higher.

While the initiatives aimed at combating drought in the KCB provide a minor part of the solution, there is a pressing need for a comprehensive and integrated water management strategy. Developing long-term and sustainable solutions that consider climate change and population growth is essential.



Konya-Altınapa Dam Lake

Reactions, Actions

Public reaction to the drought in the Konya Closed Basin is generally centered on concern, economic anxiety, and the demand for a solution.

Farmers' Reactions

- ***Economic Losses:*** Farmers report losses in agricultural yields and rising costs because of the drought. Owing to dropping groundwater levels, drilling deeper wells for irrigation is necessary, placing a heavy financial strain on farmers.
- ***Support Demands:*** Farmers call for increased government assistance to address drought issues and to develop affordable irrigation strategies.
- ***Challenges in Adopting Modern Irrigation Systems:*** Farmers need adequate financial support and training to shift to drip and sprinkler irrigation systems.

Reactions of Environmentalists and Academics

- ***Criticism of Groundwater Exploitation:*** Environmental activists and scientists often express concerns regarding excessive groundwater exploitation and the resulting sinkhole formation. Additionally, there is significant criticism regarding the oversight of illegal wells.

- ***Loss of Wetlands:*** Environmentalists frequently highlight the drying up of Lake Tuz, Lake Akşehir, Lake Ilgın, and other wetlands, emphasizing the threat to the ecosystem. They call for more effective policies to safeguard these vital wetlands.
- ***Water Management Policies:*** Academics critique the unplanned usage of water, arguing that initiatives like the Blue Tunnel lack supporting long-term sustainable water management plans. It is asserted that the Blue Tunnel project needs to provide a viable solution.

Reactions of the Urban Residents

- ***Drinking Water Challenges:*** Residents in the center of Konya are concerned about the future sustainability of their drinking water supply. Reports suggest that water quality has deteriorated due to ongoing drought conditions.
- ***Lack of Awareness:*** Many people need to acknowledge the gravity of the drought. Environmentalists, experts, and concerned individuals have highlighted the urgent need for greater public awareness of water conservation.

Reactions of Local Authorities and Civil Society Organizations

- ***Increasing Investments:*** Local governments are calling for greater support from the central government to upgrade irrigation systems and safeguard water resources.
- ***Awareness Campaigns:*** NGOs have made some attempts to promote public awareness about water conservation and sustainable farming, but the effectiveness of these campaigns still requires enhancement.

Social and Cultural Reactions

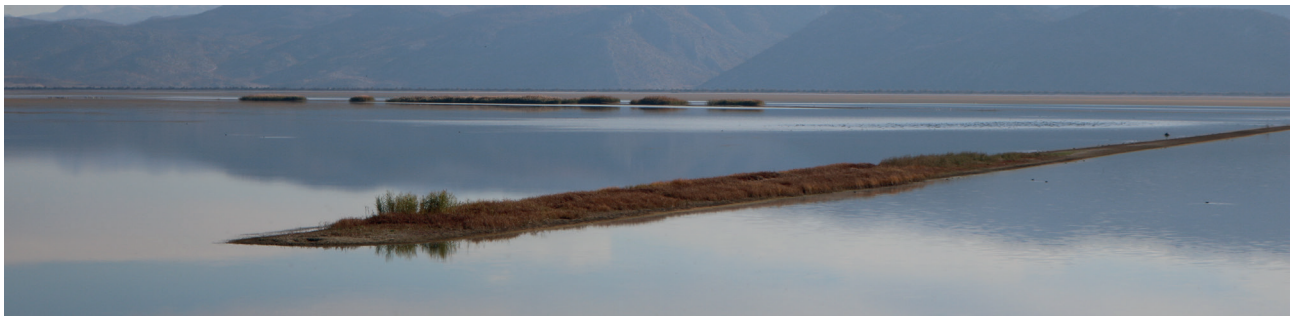
- ***Migration:*** Drought-related declines in agricultural production threaten livelihoods in rural communities, increasing permanent and temporary migration, primarily among youth.
- ***Social Tension:*** Tensions occasionally arise among farmers regarding resource accessibility. Increasing disputes over the distribution of irrigation water are notable, with lake water sharing emerging as a significant potential conflict point.

Konya-Cihanbeyli, Su kuyusu

Calls for Solution

- ***Government Policy Demands:***
  - Implementation of improved inspections and closure of illegal wells.
  - Financial support for transition to modern irrigation systems.
  - Planning and incentives to reduce water consumption in agricultural products.
  - Urgent action plans to protect wetlands.
- ***Public Participation:*** Environmentalists and NGOs contend that the public must take a more active role in shaping water management policies in the area.

The public faces significant economic, environmental, and social challenges due to the drought, which is raising the alarm. Nonetheless, the absence of a comprehensive strategy to address the drought in the area leads to reactions that mainly consist of complaints and frustrations rather than solutions. Improved water management and planning that includes all segments of society can transform these reactions into actionable solutions.



Next Steps

Following fieldwork and an extensive literature review, the Development Workshop recommends the Lake Beyşehir Basin (LBB), one of the nine sub-basins of the KCB, as a pilot area for research and implementation to address the following issues:

- Gain a detailed understanding of drought impacts;
- Evaluate how poverty and migration affect those impacted.
- Explore the inertia in creating solutions related to drought/insecurity, ensuring that solving one region's issues does not create problems in another.
- Advance participatory planning, implementation, and the development of local solutions alongside engineering efforts.

The following steps in this regard are:

- Compile, review, and summarize existing literature on the LBB,
- Conduct a rapid assessment of farmers, fishermen, and local inhabitants affected by natural drought and project implementation in LBB.
- Analyze and develop local solutions for possible impoverishment, migration, and inaction.
- Produce videos and social media content as part of a social media campaign for local, regional, and national advocacy efforts.
- Identify activities for children and young people and carry out model projects..

Field Program

6-10 November 2024 / Konya Closed Basin and Surroundings

6 November 2024	**Wednesday, Day 1**
07.00-14.00	Istanbul-Konya-Ilgın (Ayşe Kudat, assistant Dilek Kaya and driver) Meeting with İsmail Malvuş in Ilgın Çavuşlugöl
14.00-20.00	Adana-Konya (Özgür Çetinkaya and Ertan Karabıyık, with their own vehicle)
18.00-19.30	Ankara-Konya (Kurtuluş Karaşın, by high-speed train)
20.00-21.30	Dinner (entire team)
7 November 2024	**Thursday, Day 2**
10.00-11.00	Meeting at DSİ Konya Regional Directorate (entire team)
14.00-15.00	Meeting with Mevlüt Vanoğlu, KOP Regional Development Administration Soil and Water Coordination
16.00-17.00	Meeting with Ziya Aktaş, Konya Food and Agriculture University
8 November 2024	**Friday, Day 3**
09.00-11.00	Konya Soil, Water and Desertification Control Research Center
11.00-19.00	Çumra and Karapınar surroundings