DROUGHT MANAGEMENT PLAN OF KONYA BASIN

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• Drought Concept and Definitions
• Drought Management Plan of Konya Basin
  – Aim and Scope
  – Studies Conducted
    • Drought Analyses
    • Climate Models
    • Hydrologic Studies
    • Vulnerability Assessment
    • Action Plan
  – Conclusion
Definition (UNCCD, 1994):

Drought means the naturally occurring phenomenon that exists when;

Precipitation has been significantly below long term average of recorded levels which;

- Adversely affects water, soil and living creatures,
- Causes serious hydrological imbalances,
OCCURRENCE OF DROUGHTS

Natural Climate Variability

Precipitation Deficiency

High Temperature, Low Relative Humidity

Reduced Infiltration, Runoff

Increase in Evaporation and Transpiration

Soil Water Deficiency

Plant Water Stress, Reduced Biomass and Yield

Reduced Streamflow, Inflow to Reservoirs, Lakes, and Ponds

Economic Impacts

Social Impacts

Environmental Impacts

Adapted From: National Drought Mitigation Center, University of Nebraska – Lincoln, USA
Turkey has 25 water basins.
Drought Management Plans were started to be prepared in 2013 in Basin Level.
Drought Management Plan of Konya Basin will be prepared till the end of 2015.
Drought Management Plans of all basins will be finished until 2023.

Annual Precipitation (Long-term average)

Historical Drought Events Between 1950 and 2010:
Aim of the Study:

- Prepare Drought Management Plan for the Konya Basin on the basis of integrated river basin management approach.
- Mitigate the prospective drought risks by defining appropriate measures to be taken before, during and after droughts.

Konya Basin Drought Management Plan will be used by many different institutions.

Most of which contribute to the studies by participating to regular meetings as stakeholders.
PROJECT STAGES AT A GLANCE

DATA COLLECTION

CLIMATE CHANGE PROJECTIONS

HYDROLOGICAL AND HYDROGEOLOGICAL STUDIES

DROUGHT ANALYSES

SECTORAL STUDIES (SENSITIVITY)

SECTORAL VULNERABILITY

DROUGHT MAPS - DATABASE

DROUGHT MANAGEMENT PLAN
Inside the Basin

Probability distribution of Drought Occurrence by means of PDSI time series

- Probability(%) of Extreme Drought Occurrence (for PDSI)
- Probability(%) of Severe Drought Occurrence (for PDSI)

Inside and Outside the Basin

Probability(%) of Extreme Drought Occurrence (for PDSI)

Probability(%) of Severe Drought Occurrence (for PDSI)
2015-2050 Period: Expected Change in 5th Month Precipitation
HYDROLOGICAL AND HYDROGEOLOGICAL STUDIES
A drought database and a decision support software is being developed to set up an effective management mechanism.
The sectoral vulnerability analyses of drought effects on four main sectors have been carried out:

- Municipal water
- Agriculture
- Industry
- Ecosystem
DROUGHT MANAGEMENT PLAN

(By considering the information obtained from all of the analyses conducted)

Drought Management Plan of Konya Basin will include:

1. **What** are the actions that should be taken for each stage.
2. **Who** is responsible from taking the action.
3. **How** the action should be taken.
CONCLUSION

• Drought is a serious natural disaster that should be appropriately managed.
• Prospective drought risks can be mitigated by a well stated and applied drought management plan.
• Meteorological, climatological and hydrological works should be combined with sectoral studies to prepare a drought management plan.
• Drought Management Plan of Konya Basin will be the first example of Basin Scale Drought Management Plans in Turkey.
TEŞEKKÜR EDERİM

THANK YOU

감사합니다