



This Project is co-funded by  
the European Union and the Republic of Türkiye

# ENHANCING CLIMATE ADAPTATION ACTION IN TÜRKİYE PROJECT

## Climate Change Impacts in Türkiye

*Ceren Ballı Gözen*

September 16, 2024



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# OUTLINE

1. Climate Change Impacts in Türkiye
2. Extreme Hazards of Türkiye
3. Vulnerability and Risk Assessment



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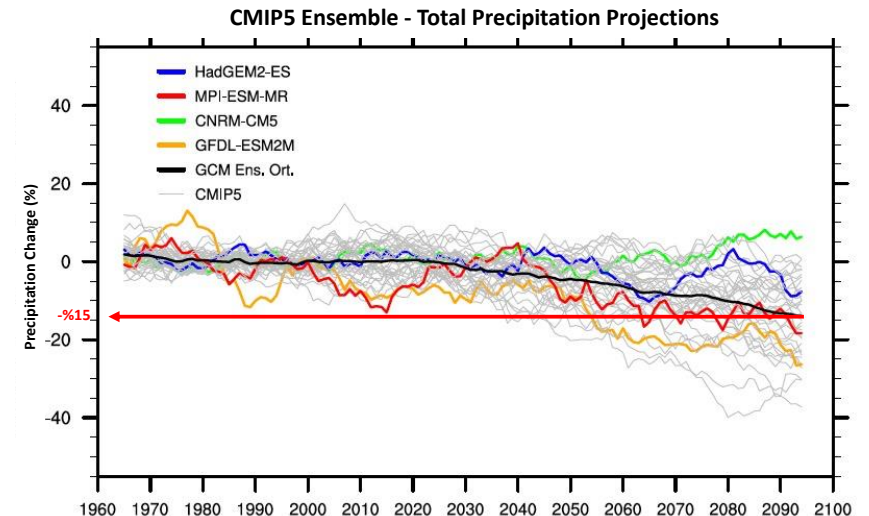
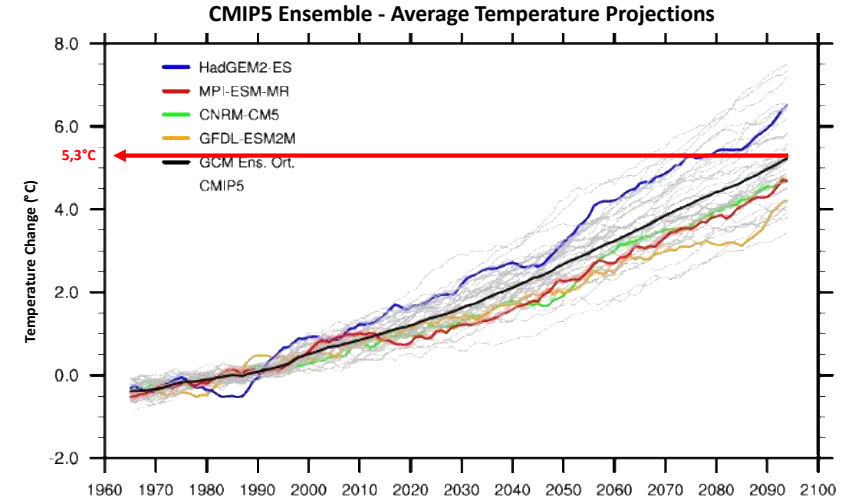
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## Expected Changes for Türkiye

### The results of the pessimistic scenario (RCP8.5) for Türkiye:

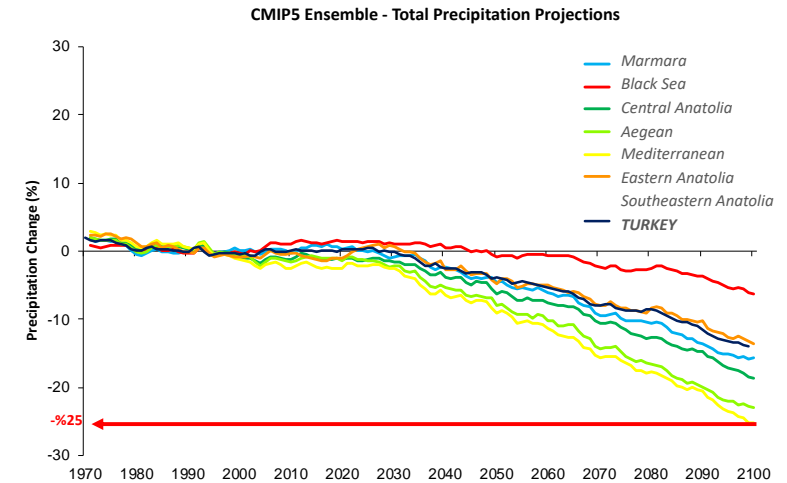
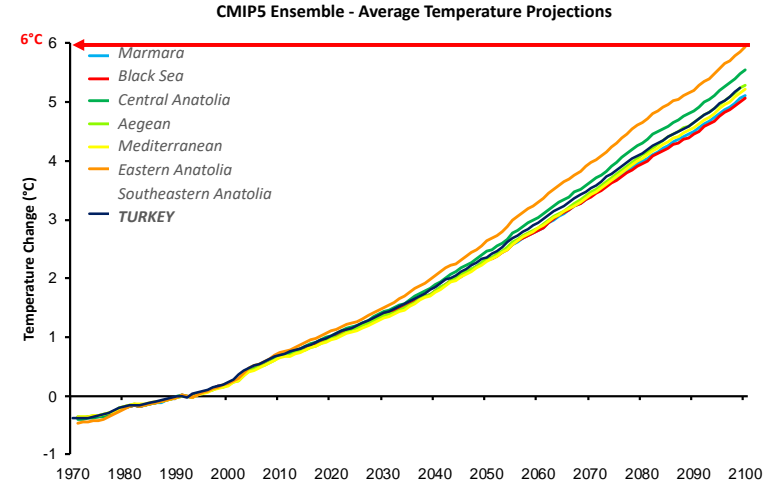
- For the temperature, an increase is expected about **5-5.5°C** with an accelerating graph towards the end of the 21<sup>st</sup> century.
- For precipitation, up to **15-20%** decrease is projected towards the end of the 21<sup>st</sup> century.



## Expected Changes for Regions

The results of the pessimistic scenario (RCP8.5) for 7 regions of Türkiye:

- For temperature, approximately **6°C** increase is projected in **Eastern Anatolia** and **Southeastern Anatolia** Regions by 2100.
- For precipitation, a decrease of up to **25%** is expected by 2100 in the **Aegean** and **Mediterranean** Regions.





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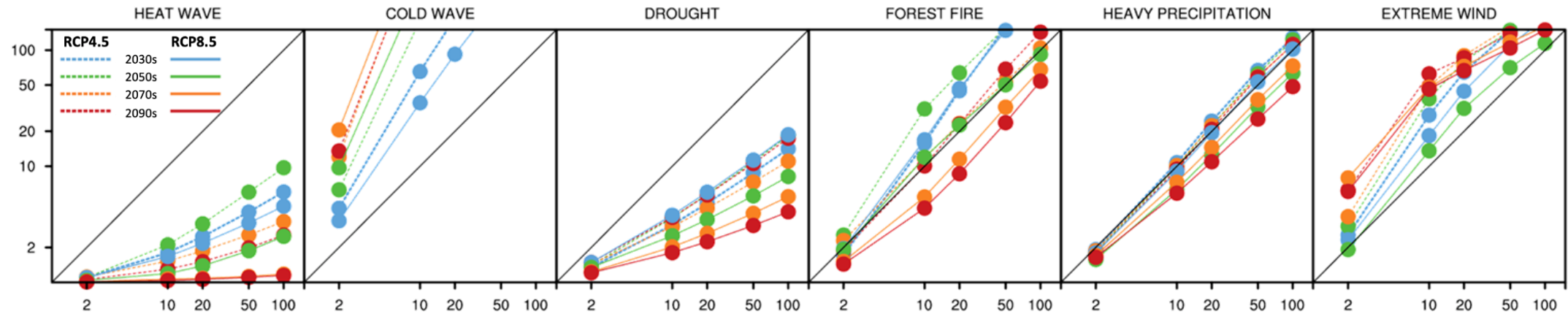
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## Extreme Climate Hazards

Changes in **frequency of extreme hazards** were obtained to identify the areas **potentially more exposed to climate change**.



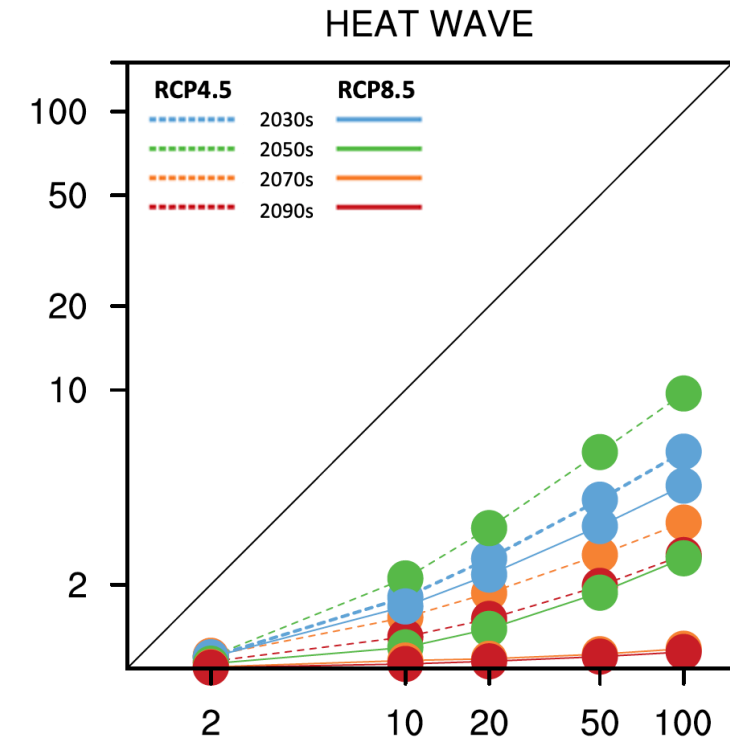
## Extreme Climate Hazards

### HEAT WAVE

According to the RCP8.5 pessimistic scenario in Türkiye:

Heat waves show a progressive increase in frequency all over Türkiye.

- A **current 2-year** heat wave event is expected to be seen **every year** from now.
- A **current 100-year** heat wave may occur **every 5 to 3 years** from 2030s to 2050s.
- A **current 100-year** heat wave may occur **almost every year** by 2070s.





## Extreme Climate Hazards

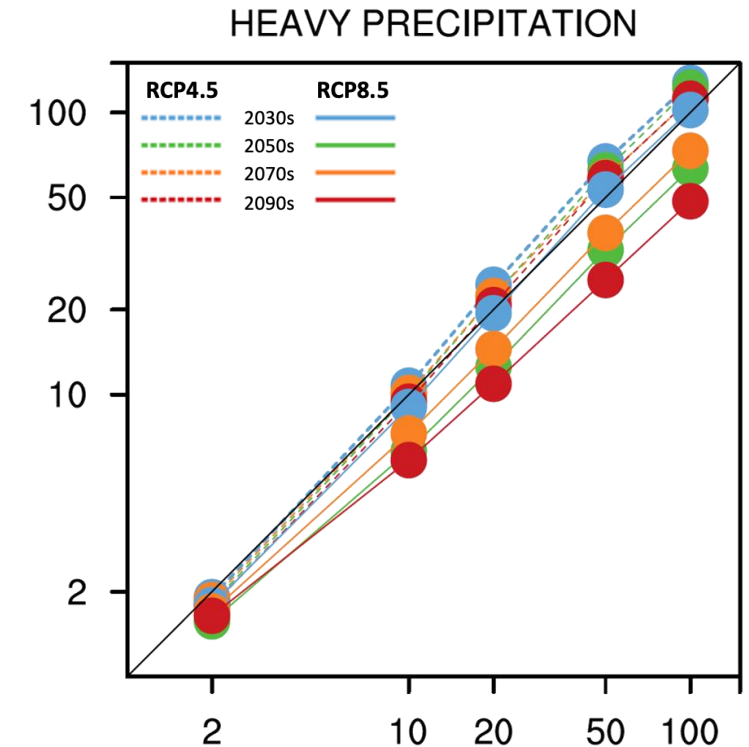
### HEAVY PRECIPITATION

According to the RCP8.5 pessimistic scenario in Türkiye:

Heavy precipitation predictions show higher spatial and temporal variability.

By the end of the century, heavy precipitation events may happen less frequently in the south of Türkiye, while more frequent is expected in the north.

- A current **10-year** heavy precipitation event may occur **every 7 to 6 years** from **2050s to 2090s**.
- A current **50-year** events may occur **every 25 years** towards the end of the century.
- A current **100-year** events could manifest **every ~50 years** in **2090s**.



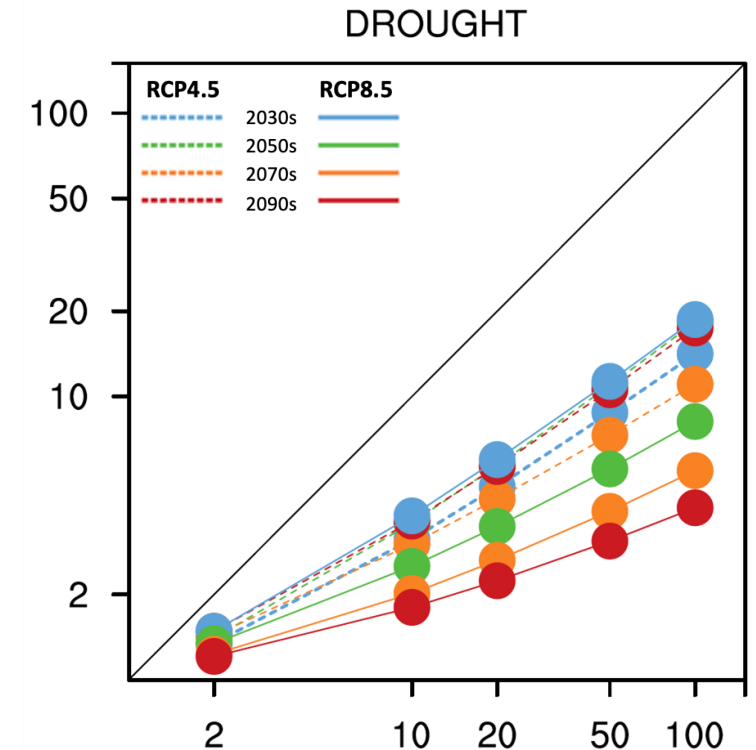
## Extreme Climate Hazards

### METEOROLOGICAL DROUGHT

According to the RCP8.5 pessimistic scenario in Türkiye:

Droughts are projected to become more intense, severe and persistent in Türkiye.

- A **current 2-year** meteorological drought event may occur **almost every year** from **now**.
- A **current 10-year** meteorological drought event may occur **every 4 to 2 years** from **2030s to 2090s**.
- By the **end of this century**, a **current 100-year** meteorological drought event could occur approximately **every 5 years**.





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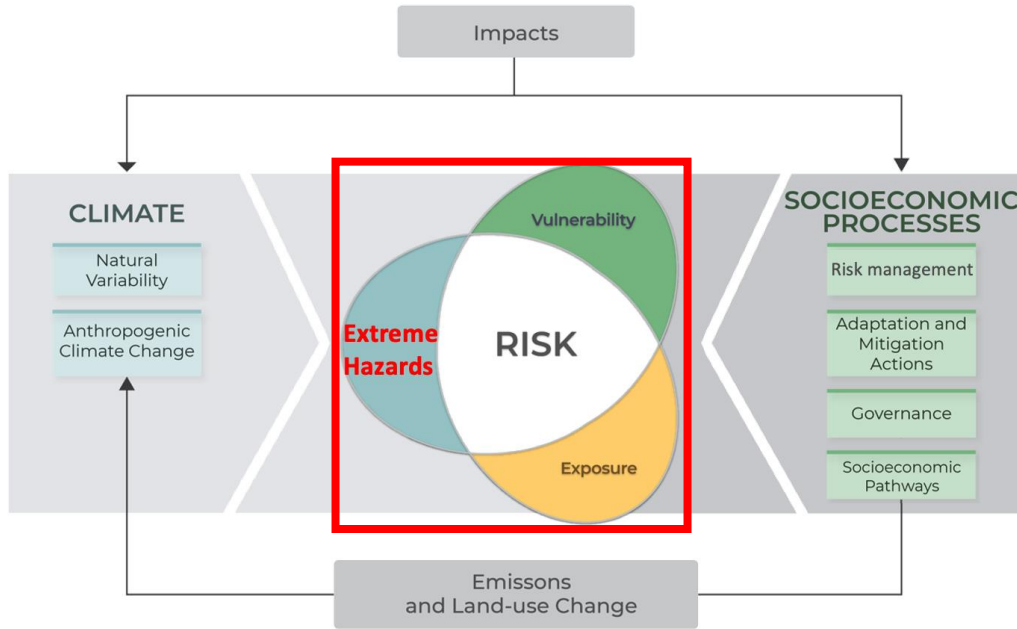
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## Vulnerability and Risk Assessment



Source: IPCC, 2007&2019 - Revised

When the extreme hazards interact with the **exposed** and **vulnerable human and natural systems**, lead to disasters.

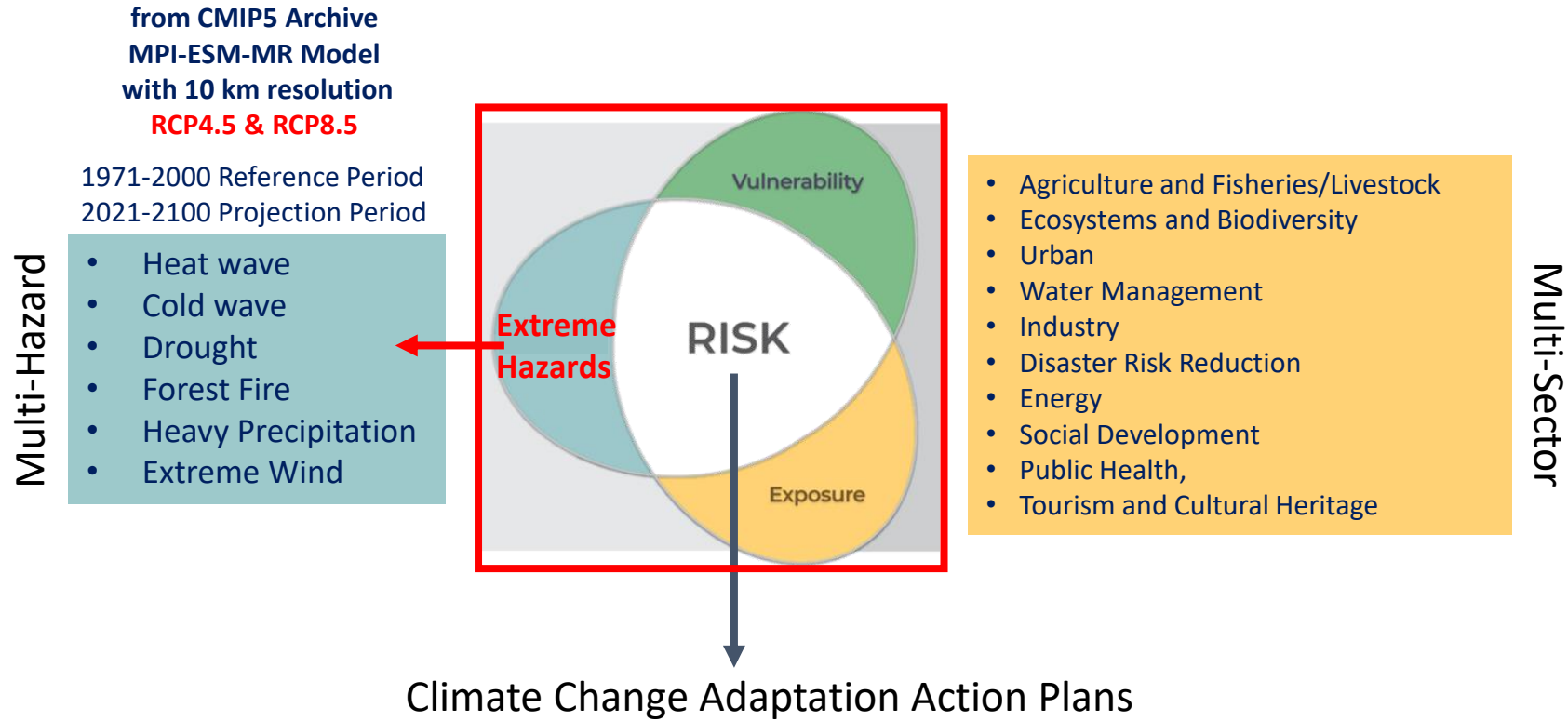
CCA Project provided the **first comprehensive multi-hazard** and **multi-sector risk assessment** for Türkiye under climate change.

The **aim** was to identify the **most vulnerable sector** and **impacted regions in Türkiye** throughout the 21st century.



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# Vulnerability and Risk Assessment





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## Vulnerability and Risk Assessment





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## Vulnerability and Risk Assessment



Flash Floods Devastate Seasonal Farm Workers' Camps in Çorum in August 2024.

Heavy precipitation in Çorum flooded the tents of 37 families and 290 seasonal agricultural workers across several villages, displacing them from their temporary homes.



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## Disasters do not strike everyone equally!

Disasters often **hit hardest in places** where people are already **struggling**. These are the areas with **fewer resources, weaker infrastructure, and less support**, where the poorest and most vulnerable who suffer the most from floods or any other hazards.

Addressing climate risks means not just about managing weather or climate events, it is about focusing on these **vulnerable areas**, and **ensuring that everyone**, no matter where they live, is protected.



**Flash Floods Devastate Seasonal Farm Workers' Camps in Çorum  
in August 2024.**

Heavy precipitation in Çorum **flooded the tents of 37 families and  
290 seasonal agricultural workers** across several villages,  
displacing them from their temporary homes.





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# THANK YOU FOR LISTENING!

*Ceren Ballı Gözen*