

**Introduction of new crop management
practices to address climate change and
food security challenges**

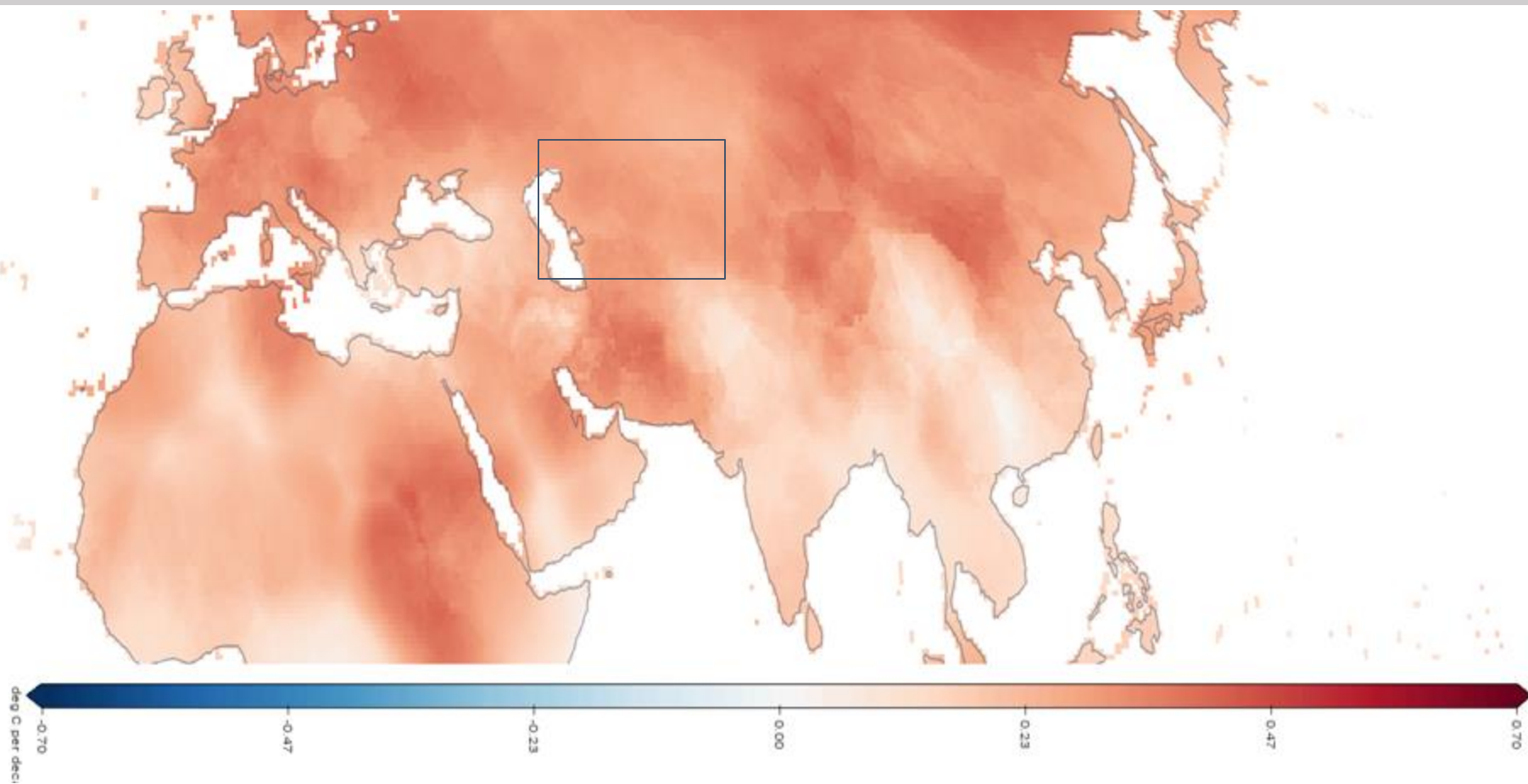
**Aziz Nurbekov,
Tashkent State Agrarian University**

Observed and future temperature change, Central Asia

Surface temperature has increased in the past century all over Asia.

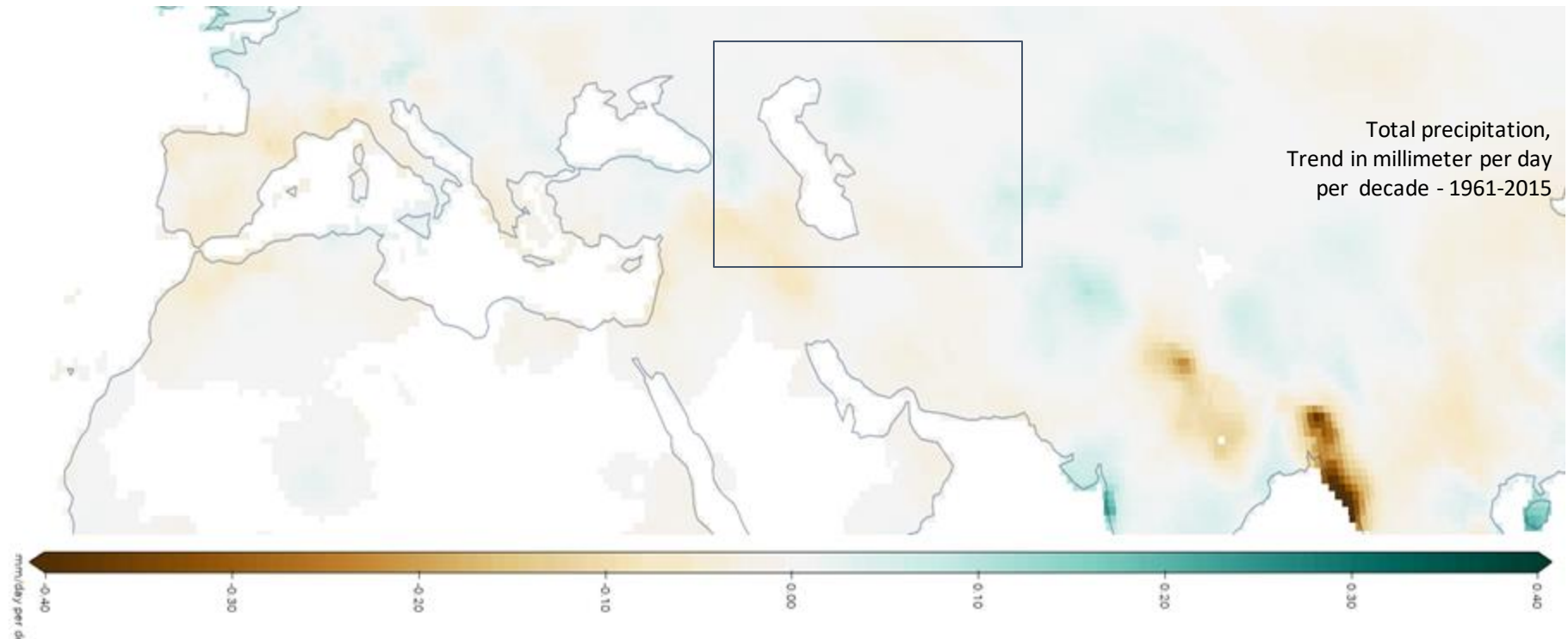
Large increases in temperature extremes are observed in West and Central Asia (extreme hot days).

Temperature rise will be strongest in winter in most regions



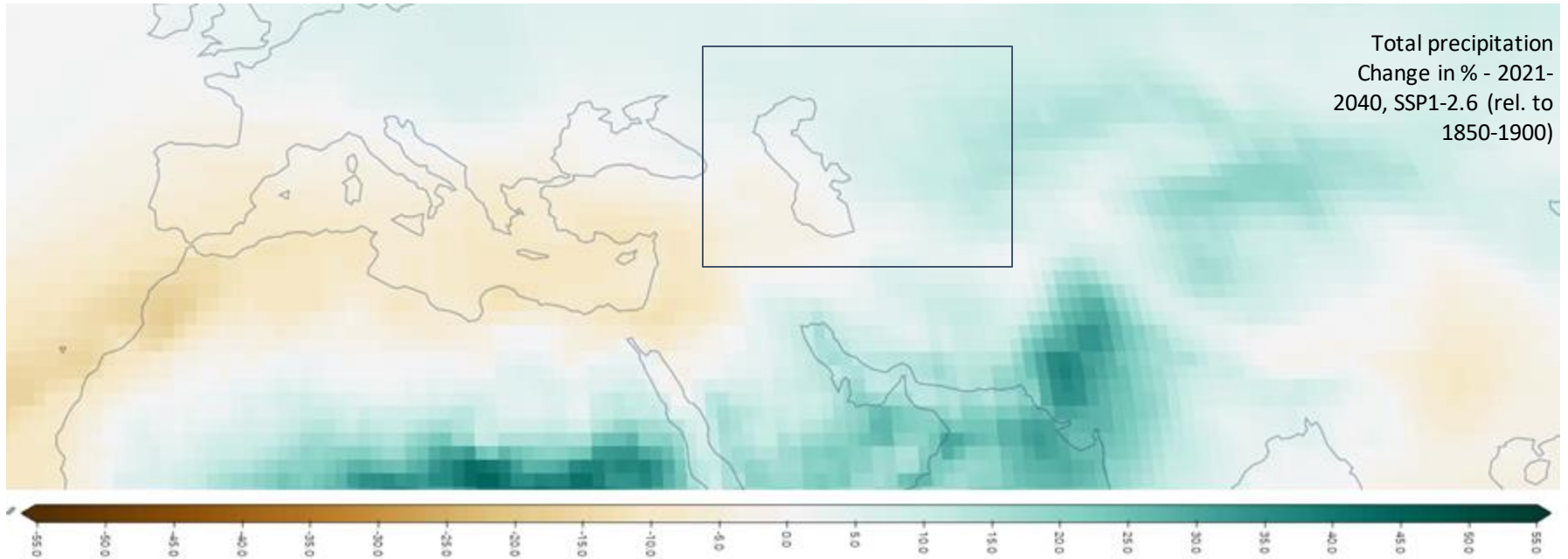
Observed Mean Temperature Change in degree °C per decade, 1961-2015

Observed change of precipitation in Central Asia



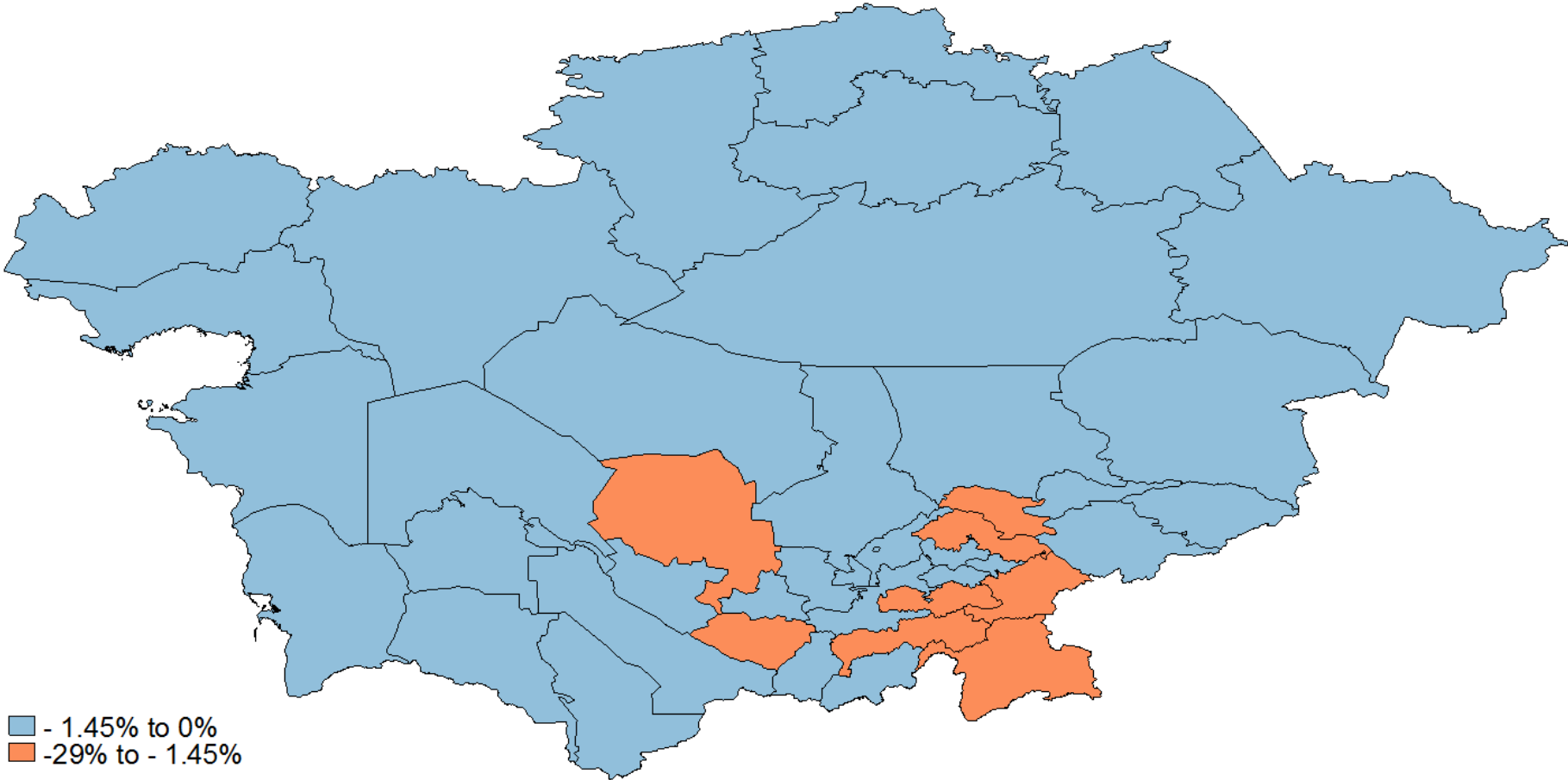
- Decreased precipitation and increased evapotranspiration are observed in West and Central Asia, contributing to drought conditions and decreased surface runoff
- Trends will intensify

Projected change of precipitation in Central Asia



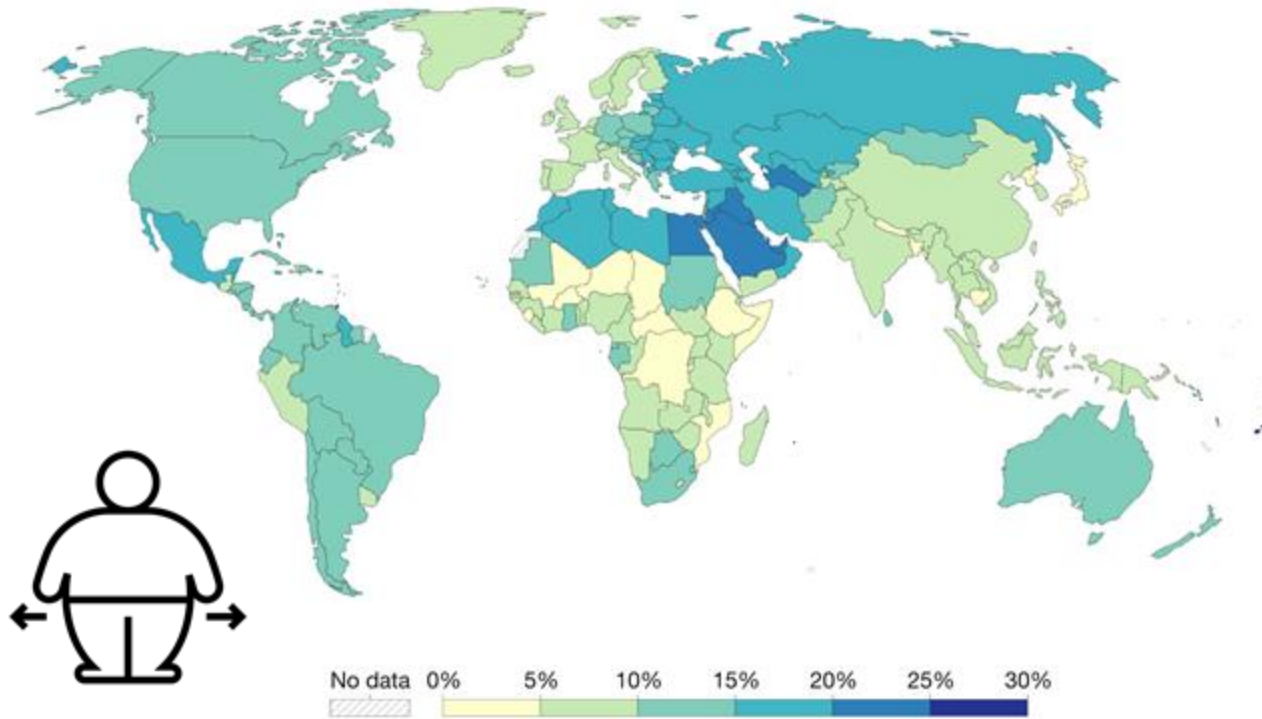
- Increasing temperatures and changing precipitation levels will persist to be important vulnerability drivers that will shape agricultural productivity in Central Asia

Impact of Land Degradation on the Poor



Source: Mirzabaev et al. (2014, under review)

Adaptation solutions - Changing diets



Source: IHME, Global Burden of Disease (2019) by Vectors Point from Noun Project (CCBY3.0)

OurWorldInData.org/obesity • CC BY

- Unsustainable agricultural expansion, driven in part by **unbalanced diets** that are high in meat and dairy, put **pressure on nature and people** and leads to competition for land and water.
- Climate impacts on food systems are projected to increase undernutrition and diet-related mortality and risks globally

Share of deaths attributed to obesity, 2019



- By shifting to a healthier, diverse plant-based diet, we reduce greenhouse gas emissions as well as pressure on land and climate, support biodiversity and improve our health

Technologies for climate change mitigation

Conservation agriculture.



No mechanical soil disturbance by – seeding or planing directly into untilled soil=**NO-TILL**



Enhance and maintain organic matter cover on the soil surface
– using crop residues and cover crops to protect and feed soil life



Diversification of species – both annuals and perennials - in associations, sequences and rotations



Recommendations

- Increase financial flows and investments this SLM in order to address climate change challenges in the countries
- Introduce a comprehensive, nationwide policy for climate-change adaptation.
- Implement SLM, improve food security and nutrition, increase incomes, and contribute to adapting to climate change.
- Adoption SLM to improve the welfare of the poorest households