



Leibniz-Institut für Agrarentwicklung
in Transformationsökonomien

Impacts of climate change on farm income security in Central Asia

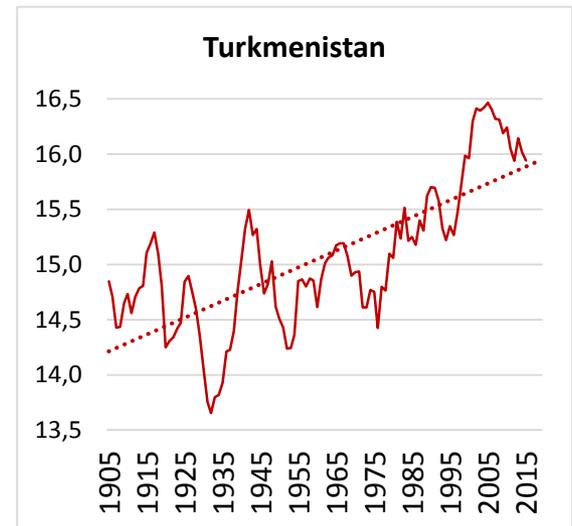
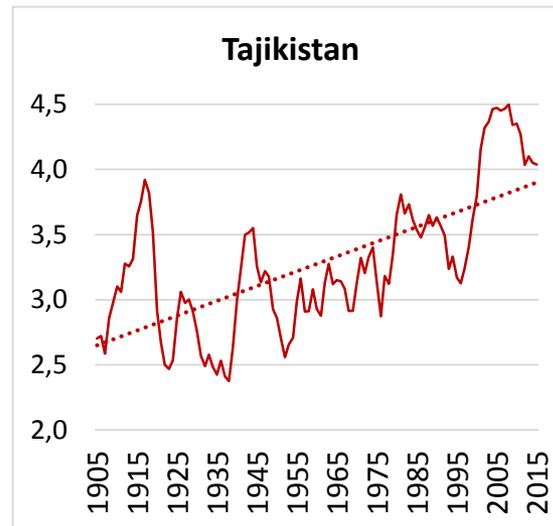
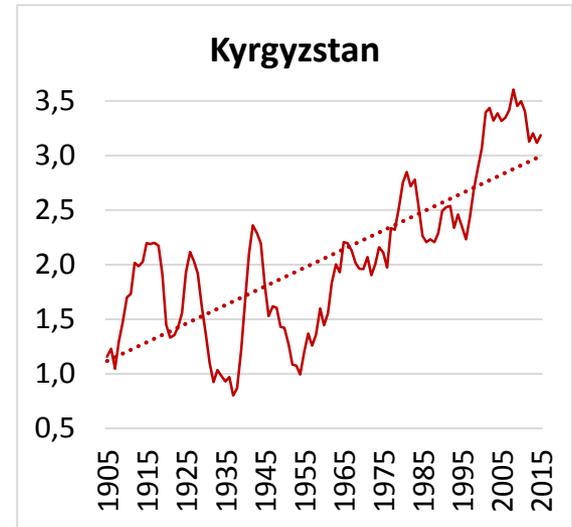
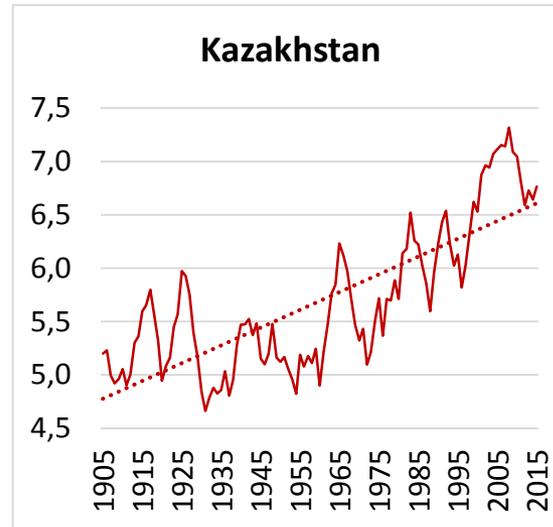
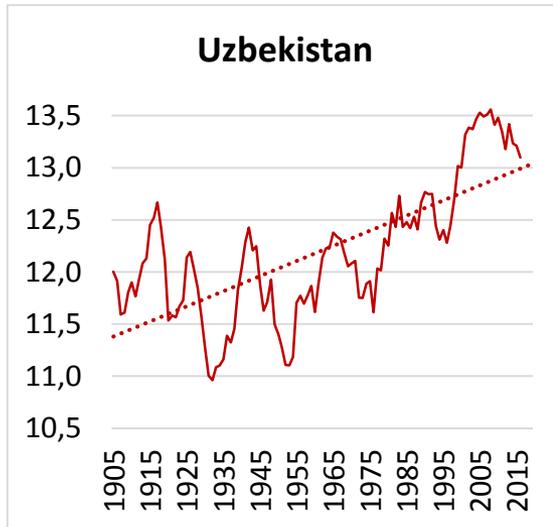
Dr. Ihtiyor Bobojonov

FAO Meeting
Chişinău, Moldova, 5-6 June 2019



- Climate change impact in Central Asia
- Role of spatial locations in the irrigation systems
- Selected adaptation options

Temperature trends Central Asia



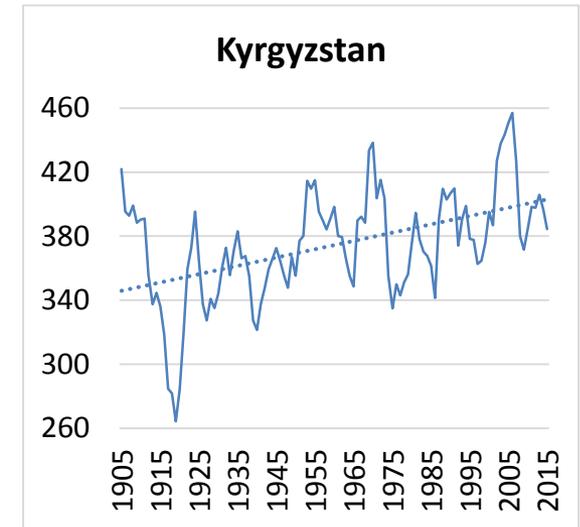
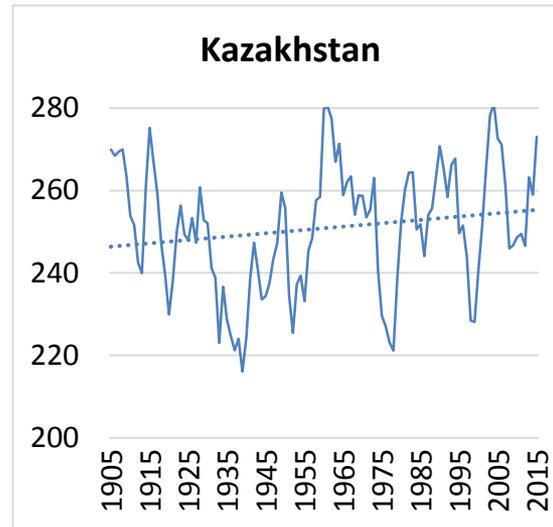
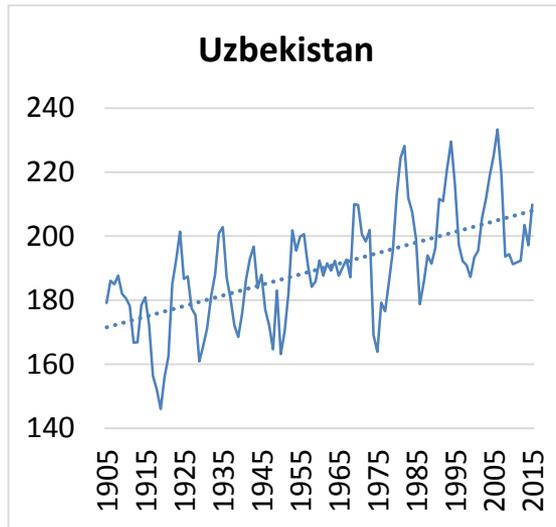
Temperature (°C)

1905-2015

----- Trend
—— Five year moving average

Source: Data calculated and visualized from World Bank – Climate Change Knowledge Portal

Precipitation trends Central Asia

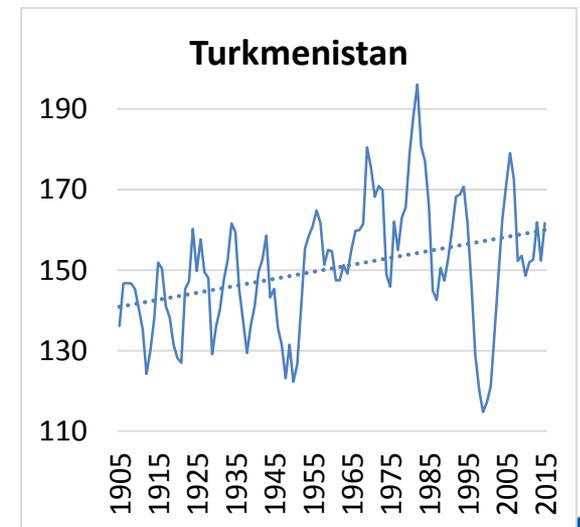
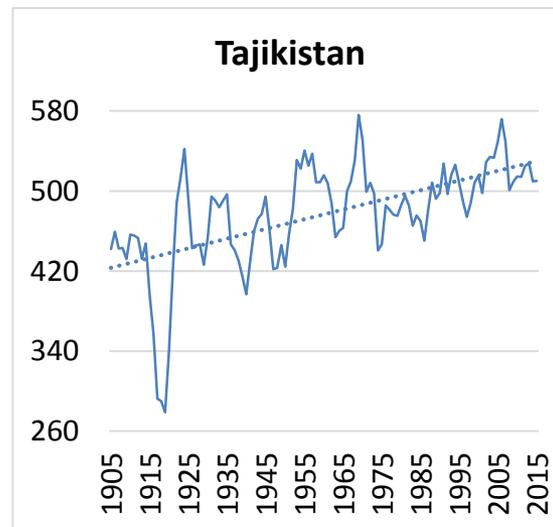


Precipitation (mm)

1905-2015

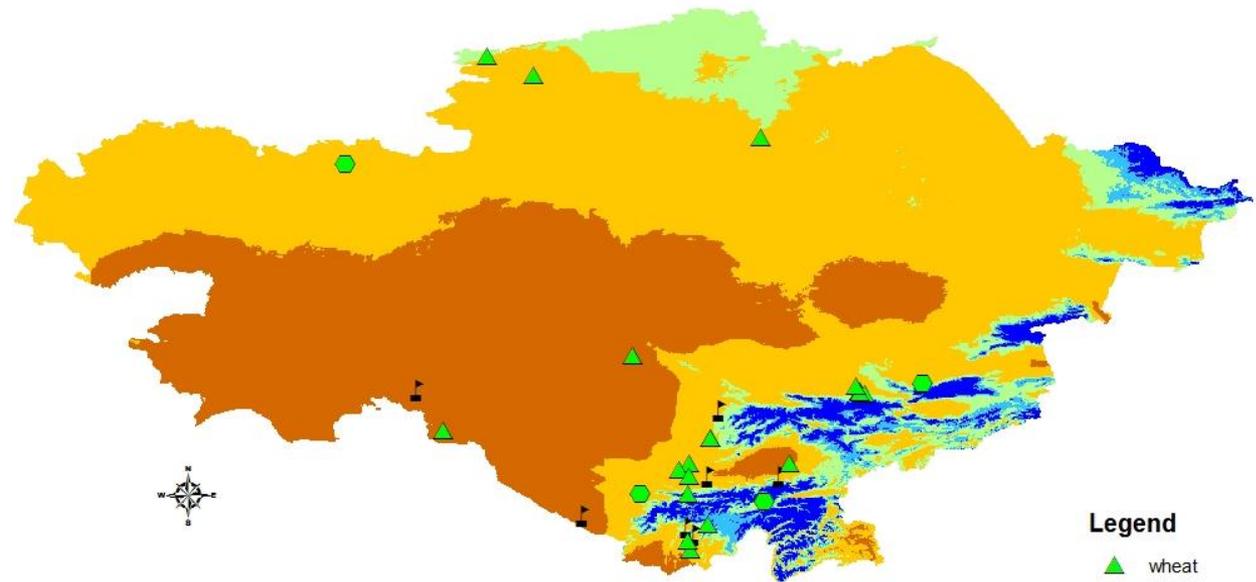
----- Trend
— Five year moving average

Source: Data calculated and visualized from World Bank – Climate Change Knowledge Portal



Location of Crop Experiment Stations in Different AEZs

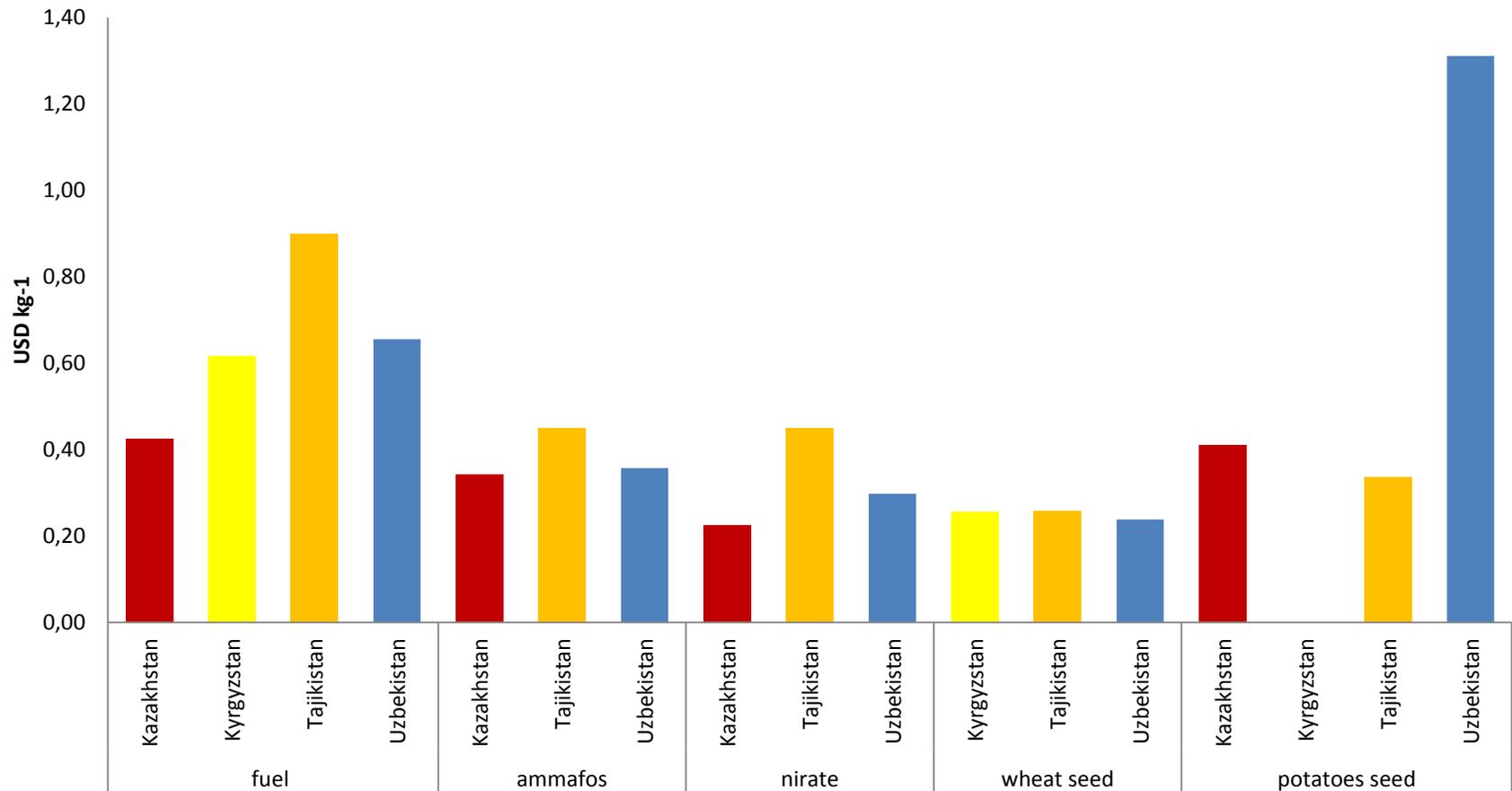
Country	AEZ
Kazakhstan	
1	arid
2	semiari
3	subhun
Kyrgyzstan	
4	subhun
5	semiari
Tajikistan	
6	arid
7	semiari
8	humid
Uzbekistan	
9	arid
10	semiari



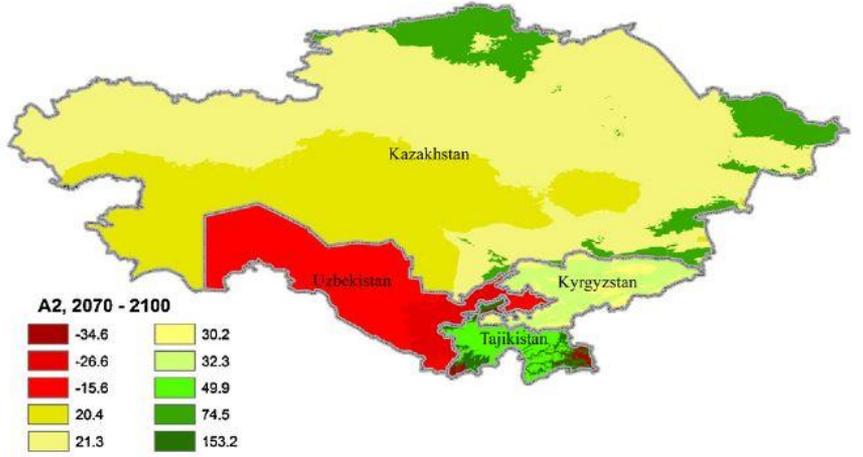
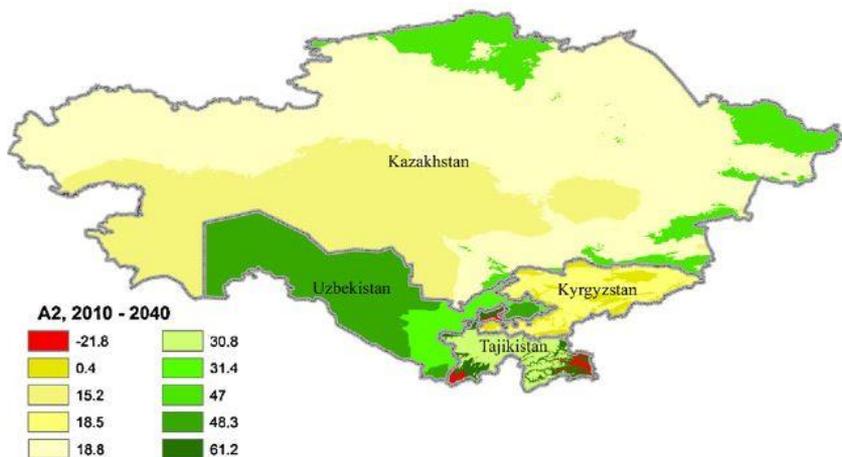
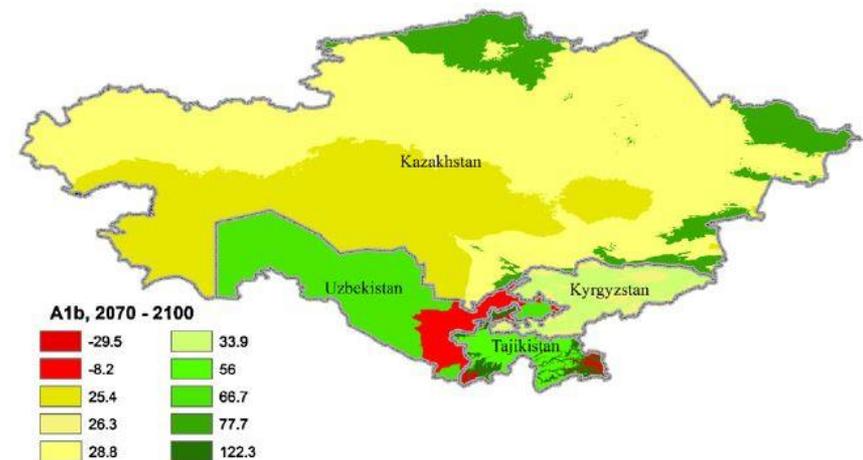
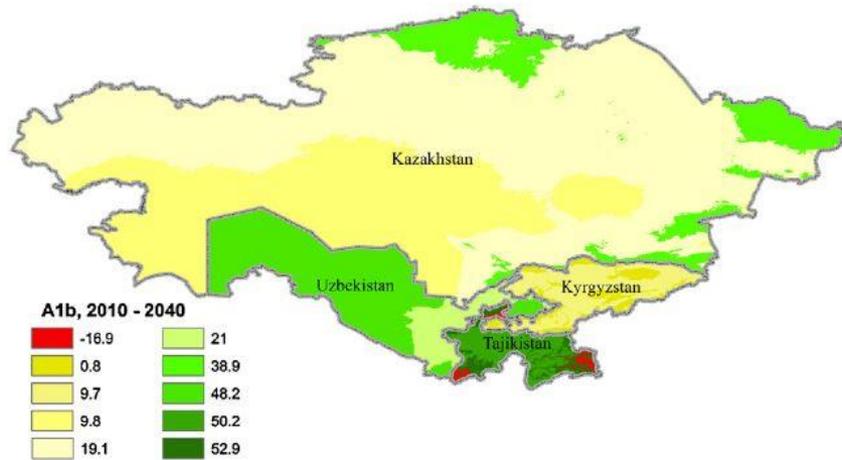
Legend

- ▲ wheat
- ▲ cotton
- potato
- arid
- semiarid
- subhumid
- humid
- perhumid

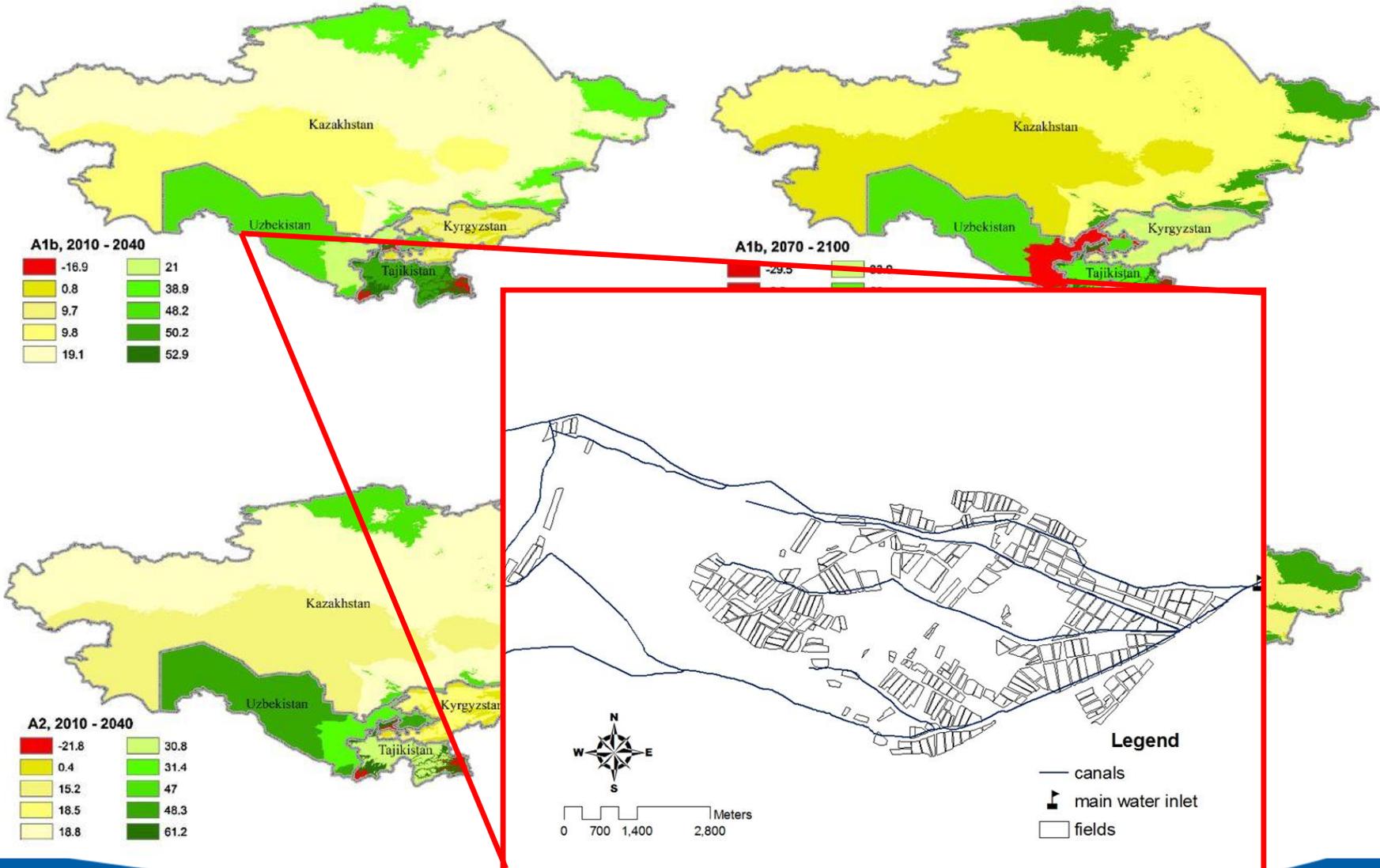
Input Price Differences Between the Countries



Change of Expected Farm Income



Location Dependent Impact



Income Change under B2 and A2 Scenarios in 2050

Spatial change under in B2



Spatial change under A2



- Market integration
 - *Better trade with neighbouring countries and the world*
 - *specialization on comparative advantage (e.g. more resilient crops)*
 - *Food security under weather extremes*
- Technology adoption:
 - *Technical solutions (e.g. drip irrigation)*
 - *Market based solutions (e.g. insurance)*

Status quo 2014

Tajikistan	Arid	-28	-30.1	-30.7	-34.6
	Semiarid	49.5	122.3	58.8	153.2
	Humid	17.1	29.5	13.2	30
Uzbekistan	Arid	14.7	25.5	15.1	-57.5
	Semiarid	10.7	-25.5	21.2	-42.6

Market integration

Tajikistan	Arid	199.6	190.4	190	178.1
	Semiarid	61.8	116.4	69	139
	Humid	44.5	43.4	21.3	36.3
Uzbekistan	Arid	327.5	339.4	324.5	122.5
	Semiarid	229.3	106.6	258.3	65.7

- Provides payments when losses occur
- Enable access to credits
- Increase investment confidence
- Improve productivity
- Increase risk coping potential
- Improves food security for rural and urban population

KlimALEZ: Increasing climate resilience via agricultural insurance



Work packages

- Development of an index-based drought insurance
- 2 waves of insurance pilots
- Impact assessment

Funding: BMBF

Duration: 2018-2021

Consortium:

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UNIVERSITY
OF CENTRAL ASIA



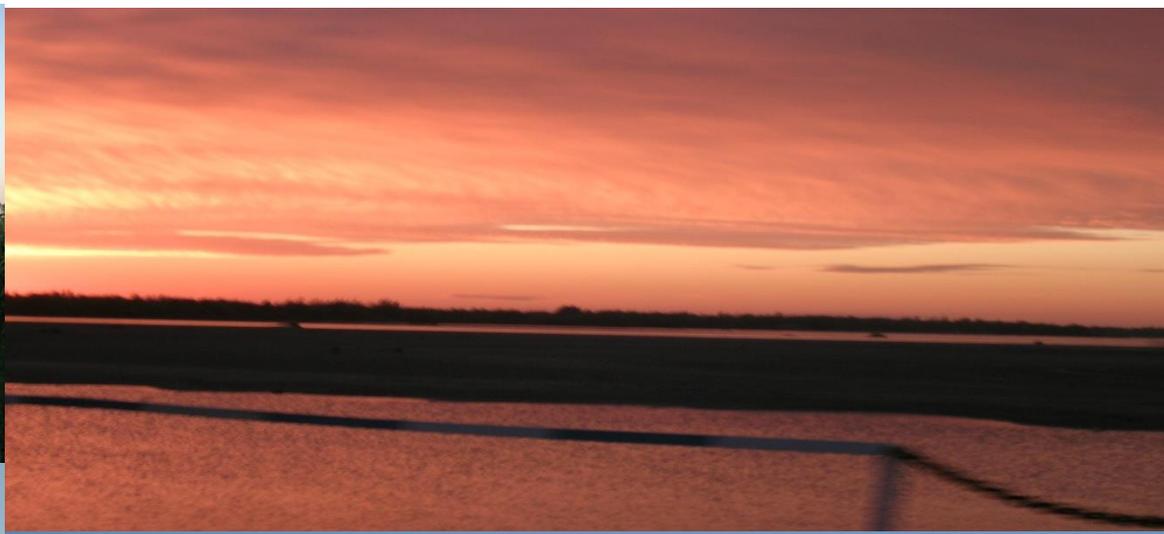
Scientific development of a region-specific weather index

- Analysis of existing insurance pilots
- Collection of weather data
- Collection of risk exposure data
- Development of index-based insurance

Demand analysis and scientific extension

- Farm surveys
- Information
- Training
- Insurance Experiments
- Feedback collection on pilot product
- 140 farmers in Kyrgyzstan
- 200 farmers in Uzbekistan





Thank you for your attention!

