

Organic
agriculture

Green Agenda

Climate Change Adaptation in Agriculture

Aleksandra Martinovska Stojcheska, Regional Coordinator

Ordan Čukaliev, Regional Coordinator

Dushko Mukaetov, Regional Coordinator

Vjekoslav Tanaskovikj, Regional Coordinator

Sreten Andonov, Regional Coordinator

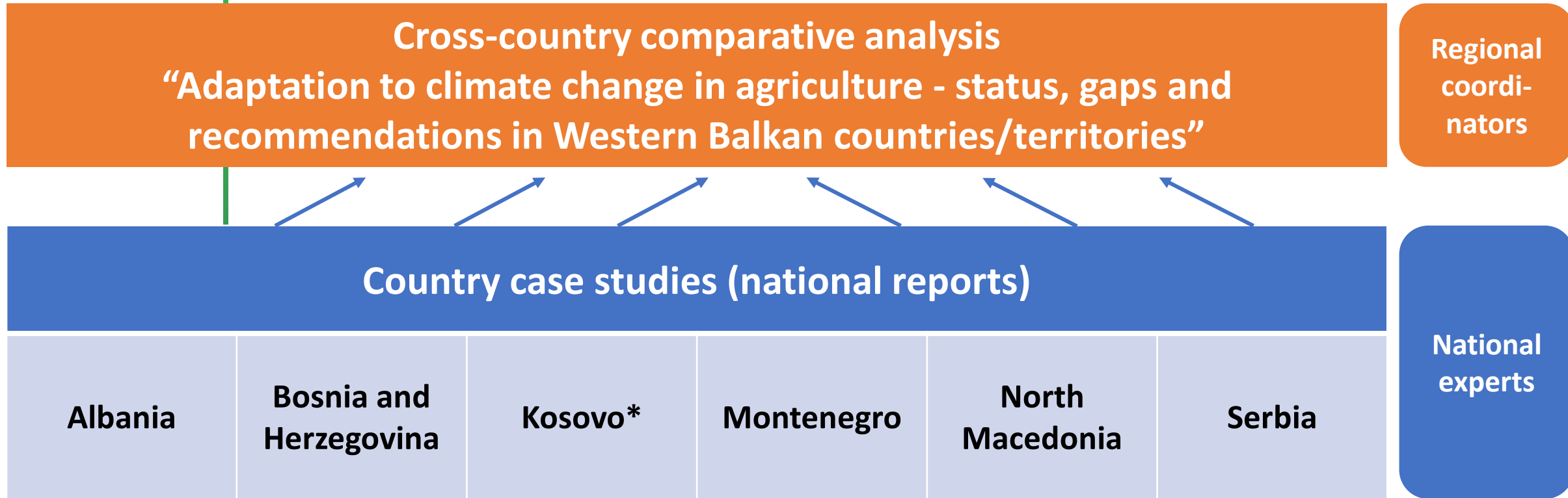
Objectives

- Provide an **overview of the status of adaptation to climate change in agriculture** in the Western Balkan countries/territories, with focus on the main developments in socio-economic context, natural resources (soil and water), crop and livestock sector in the relevant countries.
- Provide a **summary of the existing analyses and assessments** related to climate change in agriculture in the countries/territories.
- Provide a summary of the **institutional responsibilities, strategic and operational framework** linked to climate change in agriculture in the countries/territories.
- Identify the **trends, practices and responses** to climate change effects in the countries/territories.

Objectives

- Identify the main **gaps between actually implemented adaptation and goals set by policy**, reflecting resource limitations and competing priorities.
- Identify the **gaps linked to data availability and quality**, related to analysis of climate change in agriculture.
- Provide **conclusions and recommendations** of the status of adaptation to climate change in agriculture in the Western Balkan countries/territories.

Composition of the analysis



Composition of the analysis

Cross-country comparative analysis
“Adaptation to climate change in agriculture - status, gaps and recommendations in Western Balkan countries/territories”

Country case studies (national reports)

Albania	Bosnia and Herzegovina	Kosovo*	Montenegro	North Macedonia	Serbia
1. Socio-econ.	1. Socio-econ.	1. Socio-econ.	1. Socio-econ.	1. Socio-econ.	1. Socio-econ.
2. Soil	2. Soil	2. Soil	2. Soil	2. Soil	2. Soil
3. Water	3. Water	3. Water	3. Water	3. Water	3. Water
4. Crop	4. Crop	4. Crop	4. Crop	4. Crop	4. Crop
5. Livestock	5. Livestock	5. Livestock	5. Livestock	5. Livestock	5. Livestock

**Five
sections**

Cross-country analysis

Cross-country comparative analysis

“Adaptation to climate change in agriculture - status, gaps and recommendations in Western Balkan countries/territories”

Study objectives, structure, methods and data

Cross-country analysis and summary by sections (socio-economic context, natural resources - soil and water, crop and livestock sector)

Conclusions, key priorities and recommendations

Country case studies (national reports)

Albania

**Bosnia and
Herzegovina**

Kosovo*

Montenegro

**North
Macedonia**

Serbia

Methods and data

- Analysis of climate change impact and adaptive capacities on the agricultural sector and rural development, through **literature review** of formal policy documents, strategic documents, climate change reports to UNFCCC, research studies, expert papers, etc.
- **Statistical and meteorological data** for certain sections of the report (templates provided, historical and future, where applicable), available from national statistical offices and supplemented where needed with international sources.
- Input from the **key players in the governmental and expert structures** (interviews), where needed, to supplement data gaps.
- **Expert assessment** of the national developments.

Important dates and milestones

Date	Milestone
May 15 th -17 th , 2023	Kick-off meeting (Skopje): Introduction, guidelines and templates for National Report sections
September 25 th , 2023	First draft National Report sections by national experts
October-December, 2023	Comments on National Report sections from regional coordinators, interventions by national experts
November 22 nd -24 th , 2023	First Interim Meeting Regional Expert Advisory Working Group on Climate Change Adaptation in Agriculture (Skopje)
December 1 st , 2023	Final version National Report by national experts
December 15 th , 2023	Glued National Reports delivered
March 1 st , 2024	Final draft of Cross-country synthesis and full study

Regional coordination

Section	Regional coordinator
1. Socio-economic section and study coordinator	Aleksandra Martinovska Stojcheska
2. Soils section	Dushko Mukaetov
3. Water section	Vjekoslav Tanaskovikj
4. Crops section	Ordan Chukaliev
5. Livestock section	Sreten Andonov

1. Socio-economic analysis linked to climate change in agriculture

Edvin Zhllima, Albania

Željko Vaško, Bosnia and Herzegovina

Iliriana Miftari, Kosovo*

Mirsad Spahić, Montenegro

Aleksandra Martinovska Stojcheska, North Macedonia

Vlado Kovačević, Serbia

Socio-economic outline

- ⇒ **Macro-economic aspects on national economy level**
- ⇒ **Macro-economic aspects on agricultural sector level**
- ⇒ **Land use**
- ⇒ **Brief agricultural sector overview**
- ⇒ **Farm structure key indicators and context**
- ⇒ **Legislative framework and institutional setup**
- ⇒ **Literature review on climate change linked to socio-economic aspects**
- ⇒ **Agricultural policies linked to climate change**
- ⇒ **Data availability and quality for analysis of climate change socio-economic issues**
- ⇒ **Conclusions and key recommendations**
- ⇒ **References**

Key macroeconomic indicators

- Average values 2017-2022

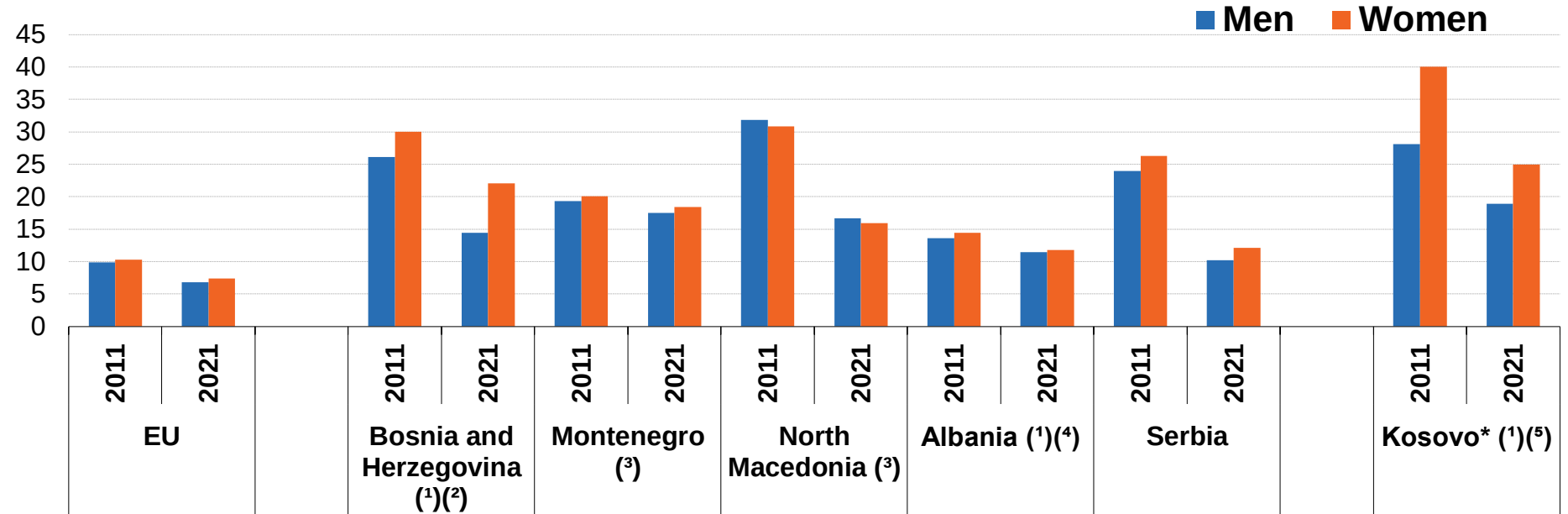
Indicator	AL	BA	XS	ME	MK	RS
GDP (mill.EUR)	14 095	18 516	7 295	4 830	11 247	48 108
GDP per capita (EUR)	4 959	5 331	4 066	7 783	5 143	6 971
External trade balance (mill.EUR)	-3 032	-3 986	-3 009	-2 107	-2 325	-6 770
Food, beverages and tobacco in household's expenditures (%)	44	40	45	33	44	35

- Relative 2017-2022/2005-2010 index (cross-country comparison)

Indicator	AL	BA	XS	ME	MK	RS
GDP (mill.EUR)	177	166	141	155	181	161
GDP per capita (EUR)	184	224	134	154	170	172
External trade balance (mill.EUR)	139	105	209	239	161	110
Unemployment rate (%)	89	64	101	81	52	69
Food, beverages and tobacco in household's expenditures (%)	118	104	123	89	121	87

Unemployment – compared to EU

Unemployment rate by sex, 2011 and 2021
(% of persons aged 15-74)



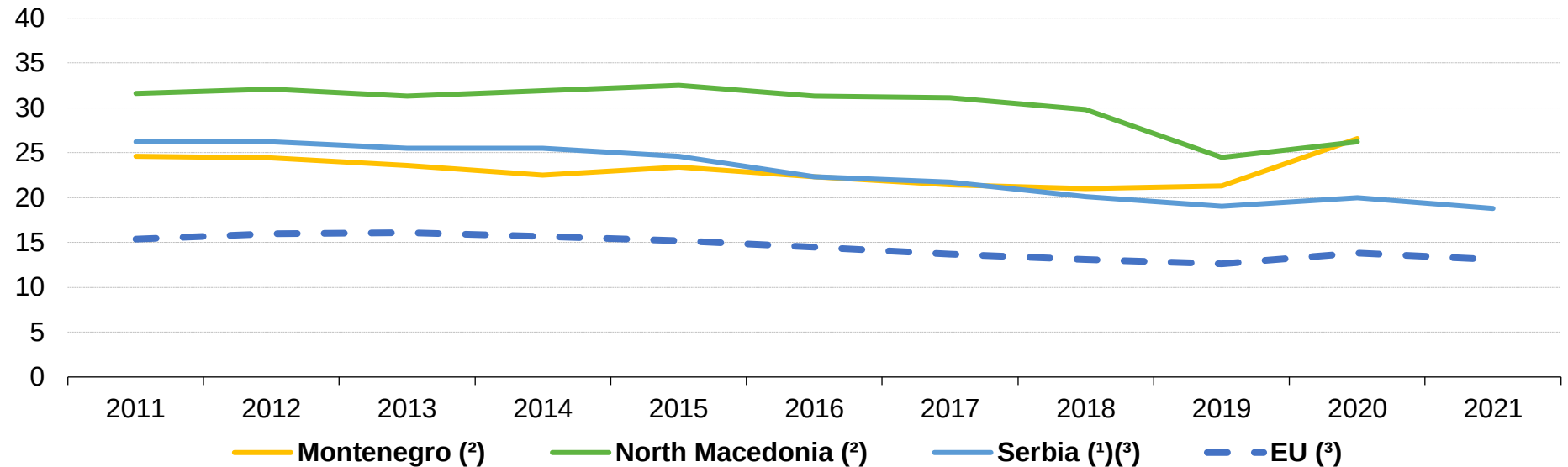
Source: Eurostat (online data code: une_rt_a) and Eurostat data collection.

Employment rates for **women** are below 50% in four of the WBC: MK, ME, BA (49%), XS(18.5%). RS and AL (just below 60%). In the EU, the rate is 68% (2021).

Youth unemployment – compared to EU

Young people neither in employment nor in education and training (NEETs), 2011-2021

(% of persons aged 15-29)

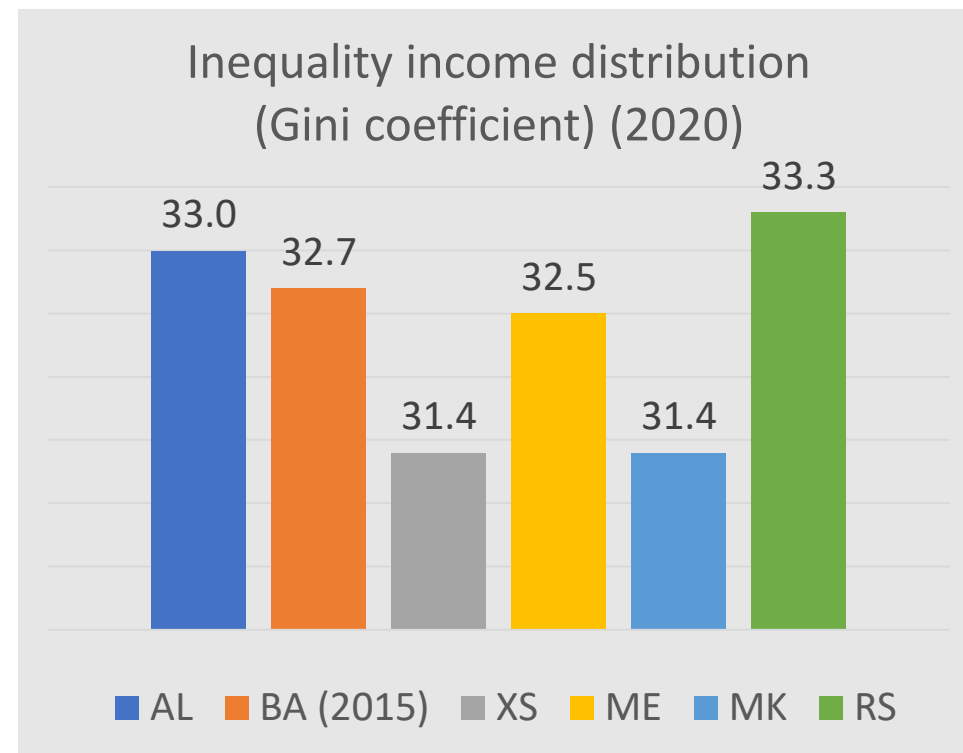
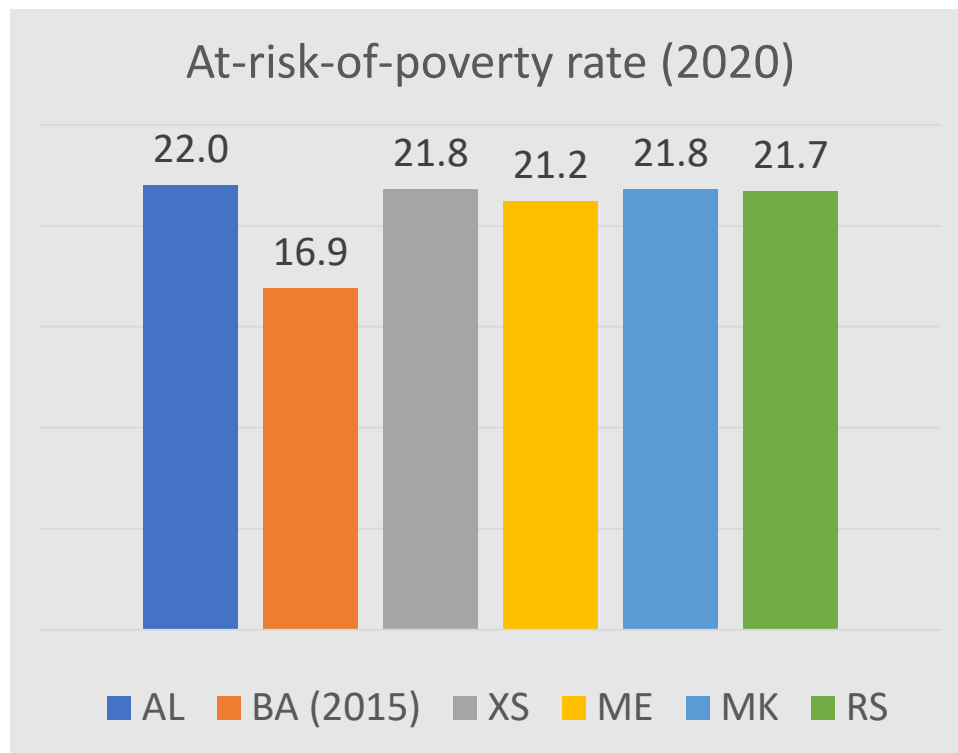


Note: Albania, Bosnia and Herzegovina and Kosovo* not available. Excludes those respondents for whom it is unknown whether they remain within the educational system or not. SDG indicator 08_20: proportion of youth (aged 15-29 years) not in education, employment or training. Target: by 2030, decrease the proportion of youth not in employment, education or training to 9%. Countries are ranked based on 2020.

⁽¹⁾ 2014: break in time series. ⁽²⁾ 2021: not available. ⁽³⁾ 2021: break in time series

Source: Eurostat (online data code: edat_lfse_20)

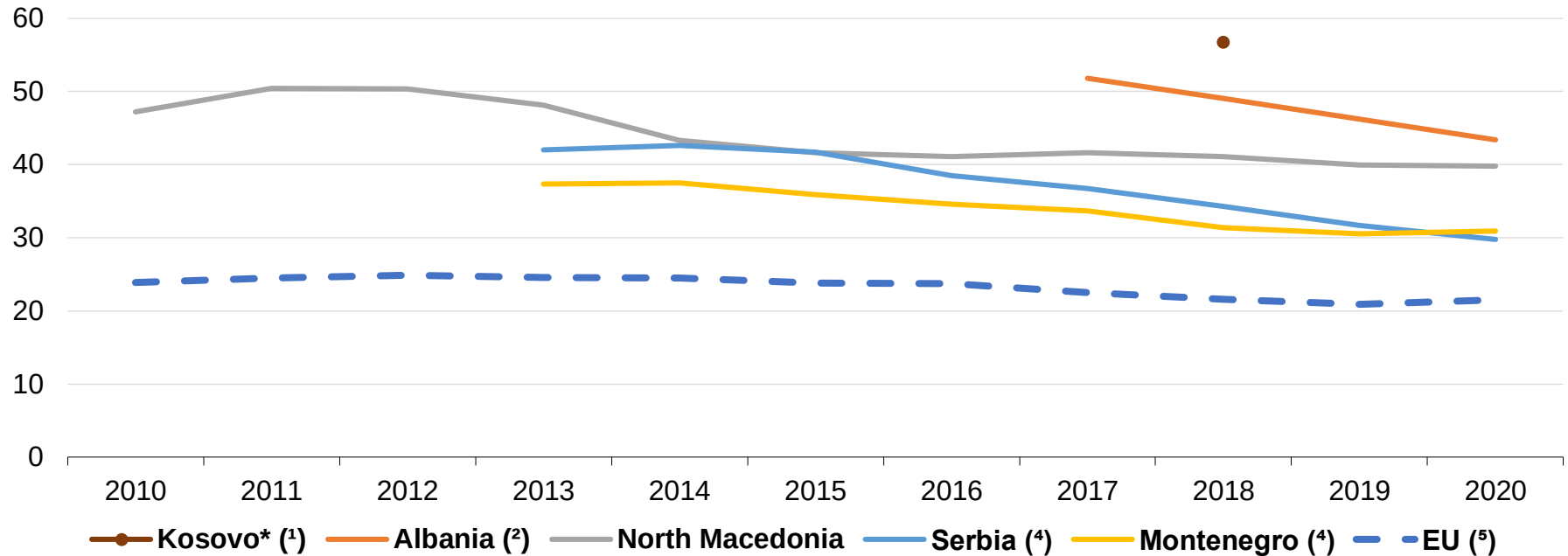
Poverty and equality



Poverty is slowly alleviated, but still affects about 22% of the population in the WB countries (EU 16.8% in 2021).

Poverty and equality – compared to EU

Persons at risk of poverty or social exclusion, 2010-2020 (%)



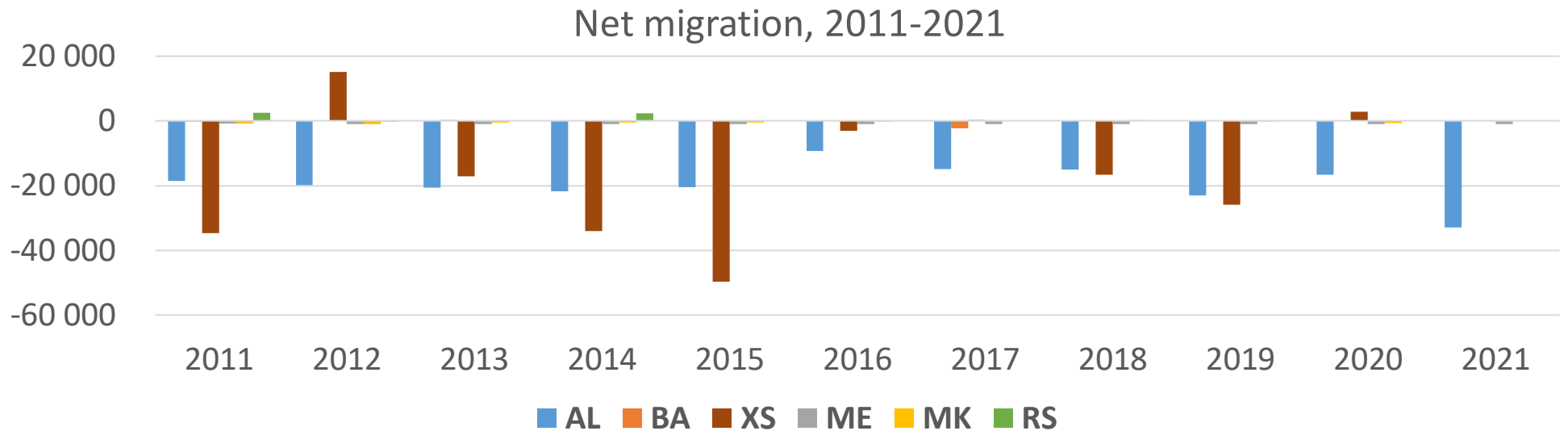
Note: Bosnia and Herzegovina not available. SDG indicator 1.2.1: proportion of population living below the national poverty line, by sex and age. Target: by 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions.

(1) 2010-2017 and 2019-2020: not available. (2) 2010-2016: not available. (3) 2013: break in time series. (4) 2010-2012: not available. (5) 2010-2020: estimates. 2020: break in time series.

Source: Eurostat (online data code: ilc_peps01)

Socio-economic aspects

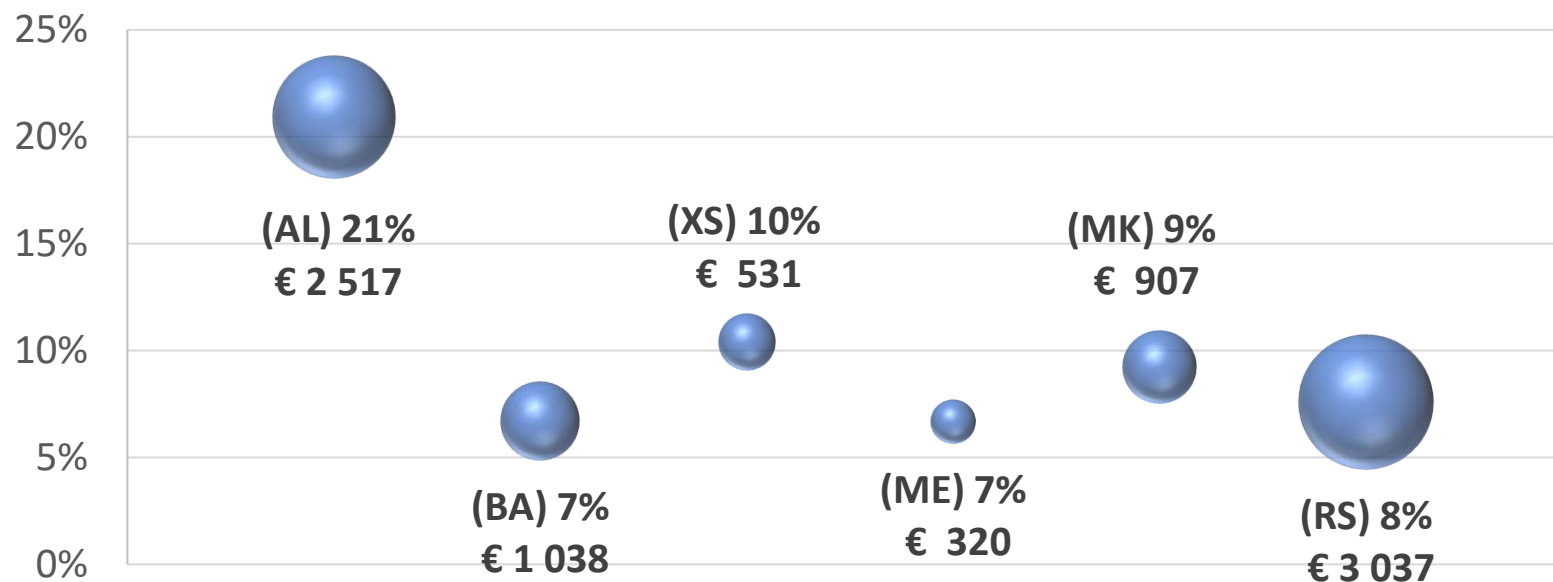
- Large proportion of the population in **WB lives in rural areas**.
- **Population** is aging in most WBC, farm managers as well.
- **Migration** is on the rise.



Agriculture in the WB

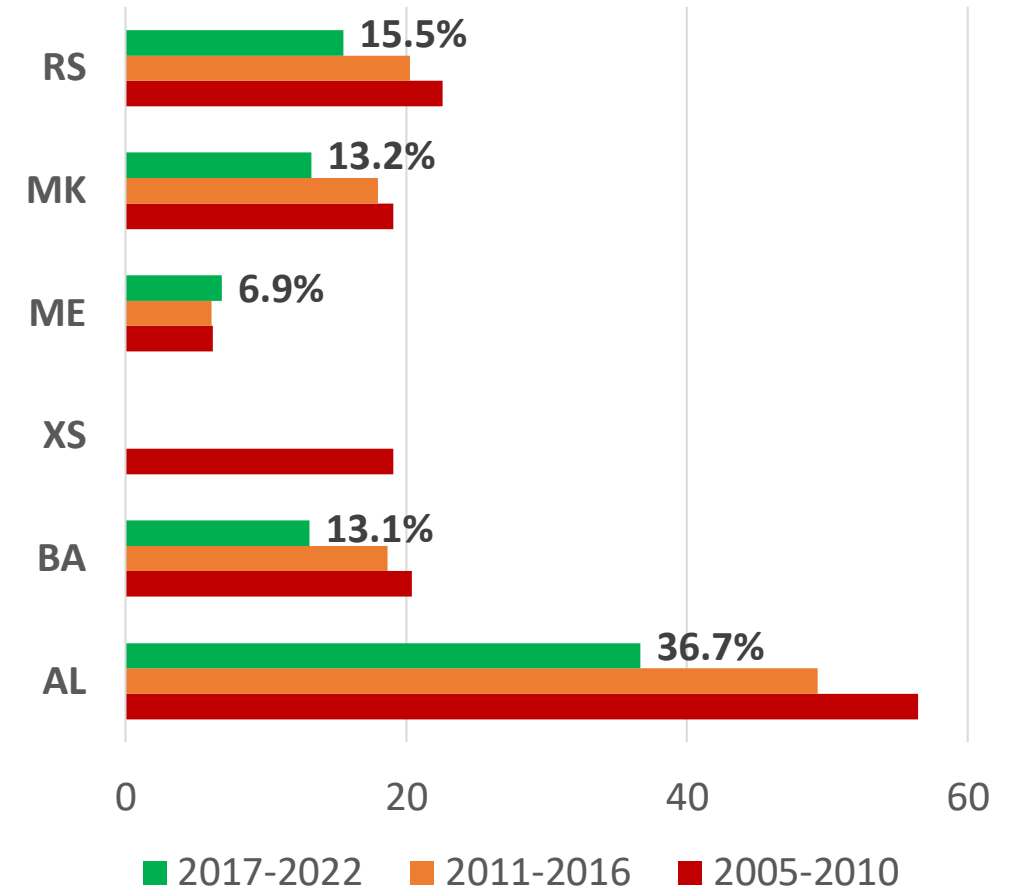
The contribution of agriculture, forestry and fisheries to the **gross value added** in the Western Balkans between 5.8 % in Bosnia and Herzegovina and 18.4 % in Albania, compared with 1.9 % in the EU (2022).

AgGVA in all activities 2017-2022 (% and mill. EUR)

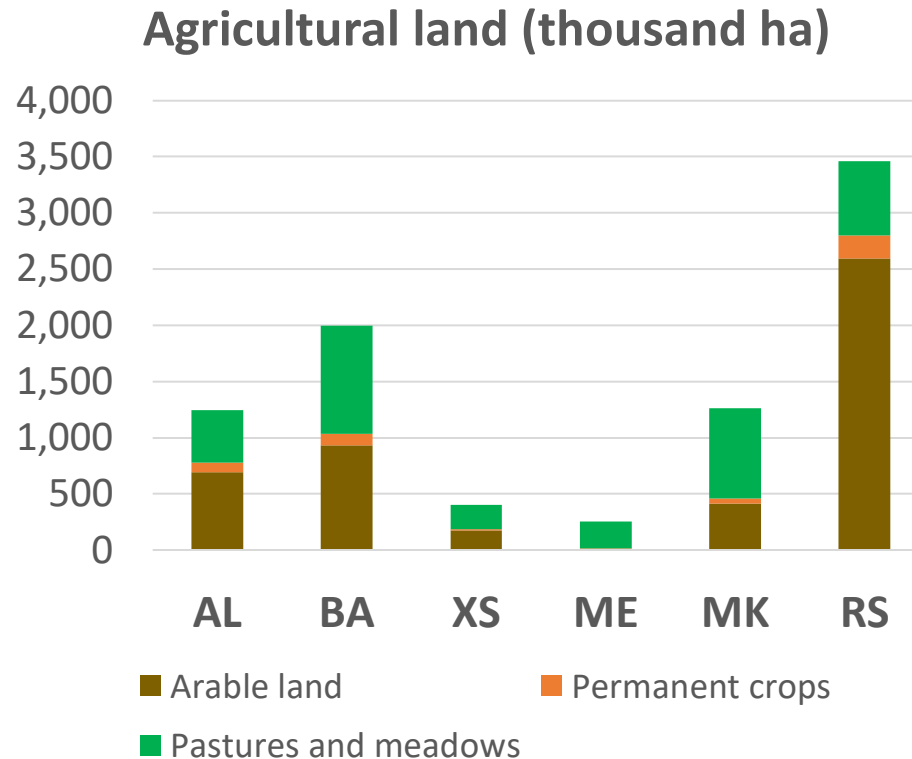


Agriculture in the WB

Employment in the sector is generally declining as share of total employment; e.g. in Albania it fell from 40% in 2016 to 34% in 2022; in Bosnia and Herzegovina from 18% to 7.3% over the same period (3.6 % of the total number of persons employed in EU in 2022).



Agriculture in the WB

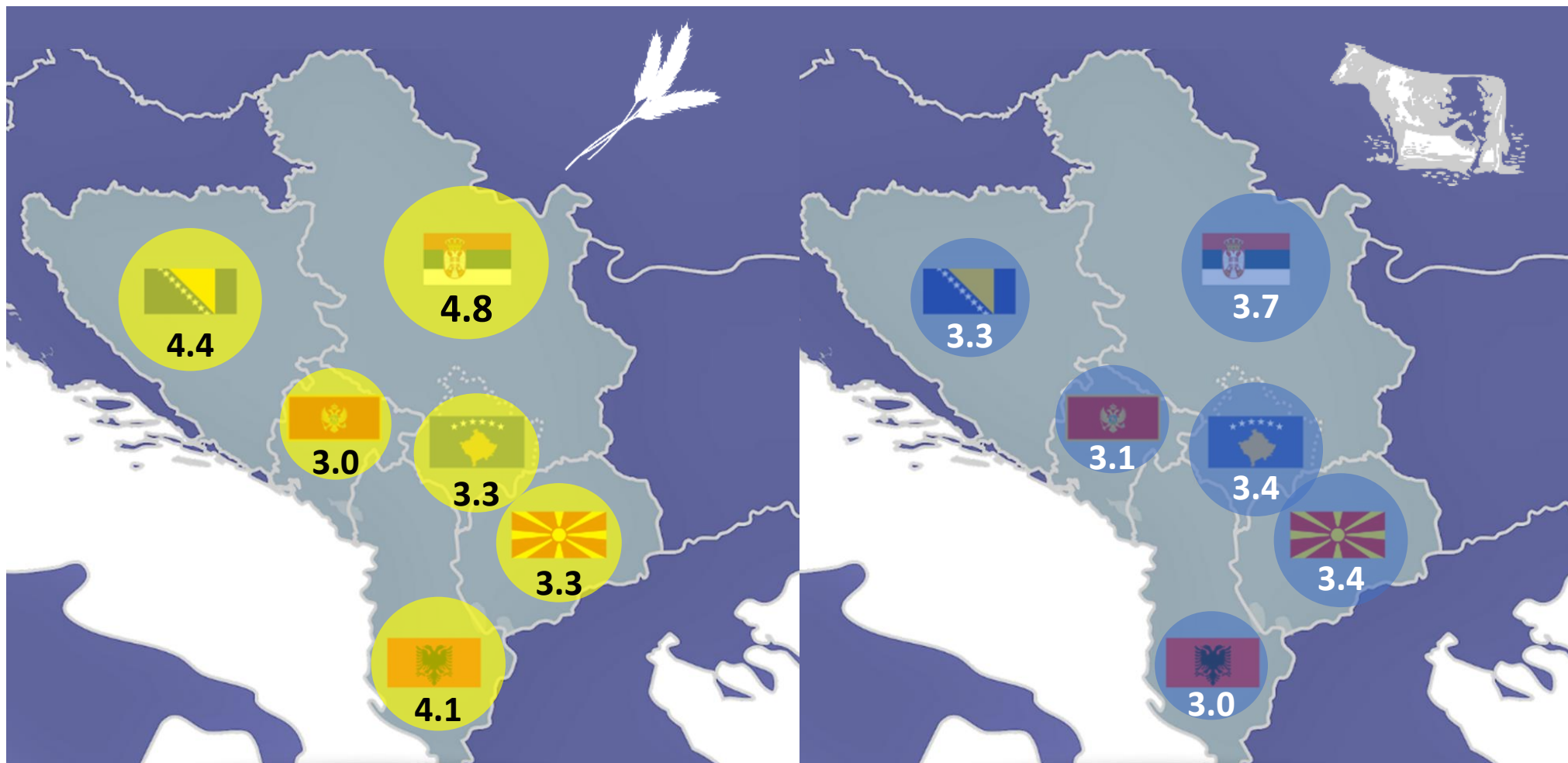


Half of the area of North Macedonia is **land used for agricultural activities**, followed by Albania, Serbia, Kosovo* and Bosnia and Herzegovina (over one-third), Montenegro less than one-fifth. Within the EU, roughly two-fifths of the total land area are used for agriculture.

Agricultural production (2017-2022, thousand tonnes)

	Cereals	Vegetables	Potatoes	Fruits	Grape	Milk
AL	689	1261	259	264	207	914
BA	1 578	280	367	243	36	620
XS	547	723	183	167	264	396
ME	7	53	36	25	22	168
MK	546	728	185	182	264	382
RS	9 575	889	597	1 453	160	1 528

Wheat and milk yields (2017-2022, '000 t)



Challenges linked to the sectoral and socio-economic development

- The **type and level of agricultural production** depends on the climatic conditions, terrain and soil type, but also level of economic development and population density.
- The sectoral and rural development in WB countries **continues to experience hindrances** - still slow productivity growth, high unemployment rates with persisting out-migration trends, limited access to productive assets, fragmentation of agricultural land, weak value chains, lack of modernization and applications of new technologies, not fully functional knowledge and innovation transfer, high vulnerability to external shocks caused by climate change or market distortions.

Legislative and policy framework, institutional setup and lit review

- **Legislative framework and institutional setup:** apart from obvious ministries (agriculture and environment), no clear connections with other relevant institutions.
- **Review on climate change sources linked to socio-economic aspects:** modest inclusion in national communications, climate adaptation plans, research still emerging.
- **Agricultural policies:** income support dominant in most countries, structural and rural development slowly increasing (prevailing in e.g. Albania). Climate change adaptation related measures present in strategic frameworks, lacking in programming and implementation.

Data availability and accessibility

- National level macroeconomic and sectoral generally available, less on socio-economic aspects.
- **Regional disparities** within the countries - limited data, especially at NUTS 4 LAU level - limiting research and modelling possibilities.
- Wheat, maize, barley, apple, grapes, sheep, milk

AL	BA	XS	ME	MK	RS
61 LAU (2018- 2022)	10 NUTS 3 level (missing data grapes)	No data	No data	71 LAU crops 8 NUTS 3 level	29 NUTS 3 level

Conclusions

- Rural areas are **significantly impacted by climate change**. The countries face a number of risks as a result of these climate change triggered hazards, including decreased public safety, loss of life and livelihoods, increased mortality and morbidity, impaired system functioning, etc.
- **Climate impacts** will – and already do – influence social and economic activity (socio-economic damages emerge from the impact on natural resources, human productivity, physical infrastructure, and ecosystem services), and vice versa, the socio-economic component is the core of the adaptive capacity.

Conclusions

- **Changes in agricultural productivity and yields** have a direct economic sway, while **trade flow shifts** brought on by these changes have an indirect economic influence on this sector. These, in turn, may have **macroeconomic effects on food prices, agricultural incomes, and, ultimately, food security** on a local, regional, and international level. The **profitability of agricultural production and the proportion of income spent on food** can be affected as a result of indirect effects (EEA, 2019).
- In order to adapt and perform better under such circumstances, **climate-smart approaches and creative solutions supported by adequate financial resources** must be boost the resilience of the sector and life in rural areas.

Conclusions

- Adoption of **information and communication technology** in agriculture, interconnections of systems and databases as well as greater access to their use by agricultural producers and other stakeholders in the agri-food systems. **Digitalisation** of the processes would undoubtedly provide valuable tools to better adaptation to climate change.
- Climate change adaptation should be incorporated into functional **Agricultural Knowledge and Innovation Systems**, including a set of procedures for creating and **transferring knowledge in agriculture**, such as **research projects, advisory services, and trainings**, in order to support farmers and other stakeholders in promoting and facilitating successful adaptive measures.
- Besides declarative goals, **budgetary transfers linked to measures supporting climate actions need to be substantially increased**, with simultaneous economic, social and environmental components.