



Towards climate friendly and resilient agri-food systems in Central Eastern Europe

The role of agroecological practices, sustainable diets, and holistic policies

Executive Summary

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Agriculture in the EU accounts for approximately 13% of greenhouse gas (GHG) emissions. Globally, the agri-food system is responsible for nearly a third of global emissions. Agriculture and food consumption are key drivers of biodiversity decline, environmental degradation and health costs associated with the currently dominant diets. There is a growing recognition and consensus that we urgently need to improve the sustainability of agri-food systems to address these multiple and interconnected crises.

The **11 countries in Central Eastern Europe (CEE)** – Bulgaria, Croatia, Czechia, Hungary, Estonia, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia – account for approximately a third of the total agricultural land and 23% of the EU agricultural emissions. The countries of the CEE region share historical and socio-economic similarities, but also challenges and opportunities that distinguish them from non-CEE countries. Yet, there has been too little focus on these specificities, either in policy design or in critical analyses of EU agri-food policies. This report is motivated by the recognition that these specificities are important and efforts are needed to develop bottom-up capacities to enable the transition to climate friendly and resilient agri-food systems in CEE countries.

There is a considerable **dominance of a productivist agenda in CEE countries**, with the agricultural discourse primarily focused on the need to increase competitiveness, productivity, and efficiency and these goals are often seen in direct conflict with biodiversity, environment, or climate goals. The agricultural sectors have a higher share of smallholder and semi-subsistence agriculture compared to non-CEE countries, civil society initiatives around systemic issues in agri-food sector are mostly absent, and research and advisory capacities to support the knowledge-intensive agroecological practices or integrated agri-food system transition are limited. The increasing awareness of climate impacts presents an opportunity to prioritize a more integrated agri-food system perspective and a shift towards the paradigm where 'sustainability and agroecological practices are basic elements of competitiveness and resilience'. Numerous initiatives have emerged recently that begin to support this shift. However, much more **capacity and coordination are required**, within civil society, research and public administrations to drive the synergistic agenda at a faster pace. Currently, there is limited funding available for developing this capacity.

Against this background, this report aims to provide inspiration and offer a framing for stakeholders to pursue a **more holistic and coordinated approach for transitioning towards climate friendly and resilient agri-food systems in CEE countries**. The report draws on mixed methods, including literature analysis, analysis of policy documents, as well as interviews and online meetings with national experts and stakeholders.

As a starting point, the report provides an overview of climate mitigation and adaptation needs in relation to agri-food systems in CEE countries, and the building blocks for sustainability transition and their benefits: agroecological practices, including organic farming, agroforestry and peatland rewetting, sustainable diets, and reduced food waste.

The central focus of the report is the analysis of how the CEE countries are currently using the main policy instruments at their disposal - the **Common Agricultural Policy (CAP)** and the **National Energy and Climate Plans (NECPs)** - to support the sustainability transition in agri-food systems. A review of activities around sustainable food consumption was out of the scope of the report, but based on expert inputs we can say that there are increasing bottom-up and also national activities in this area that however remain limited and fragmented.

Based on the analysis of the CAP strategic plans (CSPs) and the draft NECPs available by early 2024, the report identifies gaps and provides recommendations for how countries can better use these policies to support the transition towards climate friendly and resilient agri-food systems (Chapters 4 and 5). Moreover, drawing on available literature and good examples of designing food policies, Chapter 6 provides an overview of various policy tools that countries can use to speed up the process of moving towards more sustainable food consumption.

Mitigation and adaptation needs in CEE countries

Following the collapse of socialism, the cumulative greenhouse gas emissions in CEE countries dropped significantly during the 1990s, decreasing by up to 45%. These reductions were driven largely by the shrinking livestock numbers, collapse of large scale collective farms, and reductions in N-fertilisers. Total emissions continued to decrease until 2010, but since then show a slight upward trend so that **current agriculture emissions for the region are largely the same as in year 2000**. The carbon stocks, i.e. carbon stored in soils and in above ground biomass have decreased significantly since 2010, albeit to a lower degree than in EU27. This is reflective of increasing climate impacts, including damage to forests through bark beetle infestations and extreme events, such as fires and ice storms. In addition to **extreme events**, the continued **drainage of peatlands** also contributes to significant carbon stock losses. In CEE region, five countries have a significant share of peatlands in their territory: Poland, Romania, Latvia, Lithuania, and Estonia. The rewetting of drained agriculturally used peatlands can significantly reduce emissions from these areas.

There are **no studies on the total climate impact of agri-food sectors in CEE countries**, that would take into account, at a regional or more granular national level, food consumption, food waste, as well as indirect emissions associated with imports of animal feed and land use for fodder production. Nevertheless, these can be significant and need to be considered. For example, the livestock sector in CEE region relies heavily on feed imports, in particular also the import of soy from South America, production of which is associated with deforestation.

Agricultural production in CEE countries **increasingly faces risks from intense, prolonged droughts, extreme precipitation events and flooding**. These impacts significantly affect crop production, food security, and drinking water supplies. In the arable sector, the dominance of monoculture cropping, large field sizes in some countries and absence of windbreaks (e.g. Czechia, Slovakia, Hungary, and Romania) further increase the vulnerability to droughts or erosion and put pressure on limited water resources. The risk of desertification is a serious concern in parts of CEE, including Hungary, Latvia, Slovakia, Slovenia, Bulgaria, and Romania. Flash flooding in Slovenia in 2023 seriously affected arable land and grasslands. The interconnectedness of ecosystems and the potential for cascading impacts are increasingly observed and proactive measures are needed to mitigate these risks and enhance resilience.

Building blocks for the sustainability transition and the role of sustainable livestock production

Growing scientific evidence and consensus show that sustainability transition in agri-food systems requires three key building blocks: 1) a move towards a greater reliance on **agroecological practices and nature-based solutions**, including organic farming, agroforestry, paludiculture and more sustainable livestock production; 2) a shift to more **sustainable food consumption**, in particular plant-based diets and increase in consumption of organic foods to promote human and planetary health, and 3) a reduction in food waste to conserve resources. Changes towards more sustainable diets and a **reduction in food waste** can reduce the pressure on land use and thus enable a shift away from a singular focus on maximising annual yields with synthetic inputs towards agroecological approaches. This shift in turn helps to reduce emissions, support biodiversity, sustain the productive capacity of agricultural systems, and support food security.

A key element of transition is also a move towards **sustainable livestock production**. Currently, intensive livestock production, reliant on imports of feed, is a key driver of agricultural emissions, water and air pollution, and biodiversity decline. Since 2000, the CEE region has seen a spatial differentiation in livestock production, with a significant increase in cattle numbers in some areas and the reduction of livestock in more extensively managed areas. Even in countries where the total bovine livestock units have decreased, the ruminant sector still accounts for a significant share of the agricultural emissions mostly due to beef and dairy production. Poultry numbers in the region nearly doubled between 2004–2021, driven by more than a tripling of poultry production in Poland.

To meet the long-term climate targets and stay within planetary boundaries, **technological efficiency improvements, while necessary, are insufficient and an absolute reduction in total numbers of animals is**

needed. Technological efficiency improvements reduce emission intensity of livestock production, but also carry risks for soil health and do not sufficiently reduce absolute emissions or other environmental externalities. Moreover, high output and efficiency in specialised livestock production often comes at the expense of animal welfare, and is linked to increased risk of emergence of zoonotic diseases.

The scale of livestock production that is sustainable in each country and geographic context, while considering global planetary health, remains a matter of discussion. **National scenarios for sustainable livestock production are needed to guide policy discussions.** These need to consider the role of circular and environmentally friendly systems, including mixed organic crop-livestock systems and extensive systems based on grazing and feed self-sufficiency, which can support biodiversity, cultural landscapes, and climate resilience. A shift from intensive livestock towards these systems can support the transition towards more climate friendly agri-food systems, provided they are part of an overall shift towards reduced livestock numbers and plant-based diets.

Contribution of the CAP towards supporting the transition

The CAP can play a major role in redirecting incentives and advisory services to better support the transition due to its significant budget. However, our analysis of the way the 11 CEE countries have designed the CAP demonstrates that **the CAP continues to have limited positive impact for climate mitigation and adaptation and could be much better utilised to support the transition.**

There is a gap between the **budget allocated** towards climate mitigation and adaptation and the untargeted payments towards emission-intensive activities, including livestock production and drainage-based agriculture. The majority of the CSP budget is allocated to payments with weak environmental standards (decoupled, coupled payments) or voluntary one-year commitments (eco-schemes). Targeted environmental and climate payments make up a minor share of the total CAP budget. Moreover, both coupled payments and investment support, which together add up to 22% of the total CSP budget (or 18,6 billion EUR), potentially contribute to further intensification of production in the livestock sector and can thus have perverse effects in terms of climate goals.

The CAP includes in theory some good **mandatory environmental standards** for CAP beneficiaries in the form of conditionality requirements, however, **weak, and insufficient implementation** at country level hinder the large-scale adoption of climate friendly agroecological solutions on croplands and grasslands. The minimum standard on soil management (GAEC 5, 6 & 7) does not sufficiently support soil carbon maintenance and sequestration on mineral soils in arable systems. Furthermore, minimum standards on non-productive landscape features (GAEC 8) are crucial to support on-farm biodiversity. However, the continuing exemptions and derogations limit the potential of this standard with no clear development pathway. Finally, requirements for the protection of permanent grassland (GAEC 1 & 9) do not effectively prevent the ploughing of permanent grassland.

The funding and design of eco-schemes and agri-environmental-climate payments are insufficient to incentivise large scale adoption of sustainable farm practices beyond conditionality. Eco-schemes are an important feature in the CAP due to their application over a large area of agricultural land and their significant budget allocation of around 15% of the total CAP budget. Currently, eco-schemes in CEE countries largely focus on cropland management with limited incentives moving beyond the current baselines, therefore creating mostly windfall effects. Due to their multi-annual nature, ENVCLIM measures provide a more secure funding for more radical transitions towards sustainable and resilient business models, while leaving room for trail-and-error. However, the available budget, area targets and intervention design limit the impact of ENVCLIM measures to incentivize the transition. CEE countries mainly use ENVCLIM interventions to support the adoption or the maintenance of organic farming, animal welfare, and different types of grassland management while measures focused on arable land are limited.

Coupled payments account for a large share of the CAP budget and primarily support the livestock sector without setting clear environmental and animal welfare requirements. This is an ongoing subsidy for

GHG-intensive livestock production and undermines the goal of increasingly plant-based diets within planetary boundaries. At the same time, coupled payments dedicated to fodder and protein plants also mostly and directly support the emission-intensive livestock sector. Coupled payments largely fail to support marginalised sectors or beneficiaries such as shepherds or small ruminants.

Animal welfare payments support very minimal improvements, primarily in intensive-livestock systems (poultry, pigs and dairy) and are a missed opportunity for targeted payments towards an animal welfare-oriented production. The requirements for improving animal welfare are low, with the dominant focus being on technical improvements such as space allowance and living conditions, and only very limited support for more ambitious access to outdoors or to grazing. **Modernisation and productivity investments** make up a major part of the investment funds. They can offer the opportunity to provide incremental financial support for the modernisation of stables including minimum requirements for animal welfare.

Peatland rewetting and agroforestry are key nature-based solutions for climate mitigation, adaptation and other environmental benefits, yet they hardly play a role in the current CSPs in CEE countries. Paludiculture is not supported at all.

Organic farming also receives increased attention under the CAP, although there are differences between CEE countries. The focus is on developing the production side, while processing and market development are lagging. To increase the share of organic farming and strengthen markets for organic foods targeted investment and development interventions are needed for the processing and market development. Institutional capacity building, research and development, as well as farm advisory support are crucial to further develop organic farming in CEE countries.

The CSPs provide very limited support for emission reductions from the livestock sector, with limited interventions and ambition programmed for the R. 13 indicator on Reducing emissions in the livestock sector. Instead, many countries address the sustainability aspects of the livestock sector through animal welfare interventions (R. 44), with no clear focus on emission reductions and climate protection, and weak overall requirements for animal welfare.

As part of the analysis, a simplified assessment of the potential mitigation impacts of selected interventions in the CSPs of CEE countries was carried out. This assessment considered the area-based payments (eco-schemes, agri-environment-climate payments), animal welfare payments with a clear link to animal health, and investments with explicitly climate-relevant targets. It did not consider impacts from other interventions, such as coupled payments, conditionality or investment interventions on modernisation and productivity. Taking into account the variability in effectiveness and potential uptake of programmed measures, the assessment delivered three potential values – minimum, mid-, and maximum. The maximum values are most likely overestimating the potential impacts, and the mid-values likely demonstrate more realistic impacts.

The assessment confirms that the CSPs for CEE countries deliver limited mitigation impacts, and these come primarily from carbon sequestration. The estimates for the potential mitigation impacts range from very low levels (less than one percent for Latvia, Romania, Slovenia, and Slovakia for minimum mitigation estimates) to greater than 40% reduction of agricultural emissions (Estonia, Latvia and Poland for maximum mitigation estimates), with the most realistic potential values around 17% across the countries. Importantly, the mitigation potential from reducing emissions, i.e. absolute and non-reversible mitigation impact, accounts for less than 10% of the total estimated mitigation impact across all the countries. Carbon sequestration, which is reversible and non-permanent, contributes more than 90% of the positive mitigation impact of the interventions considered in this analysis. This further underscores the need for a step change in ambition on reducing emissions.

The contribution of the NECPs towards supporting the transition

NECPs are a key tool for bridging agricultural, food, and climate objectives. However, the analysis of the draft NECPs in CEE countries shows that they do not reflect sufficient ambition for agriculture and the land sector

as a whole **as none of the CEE countries are projected to fully meet their obligations under both the ESR and LULUCF Regulations**. This highlights the need for a step change in mitigation efforts in agriculture and land management in CEE countries. Indeed, agriculture and land management receive very limited attention in current draft NECPs. The emphasis on quantitative climate targets also means that technical measures, which yield easily quantifiable emission reductions are favoured over more holistic approaches, including agroecological practices, agroforestry, peatland rewetting, and dietary changes. This is probably also partly because the mitigation potential of efficiency measures is easier to quantify and that there is a need to increase efficiency in livestock production and more generally in the utilisation of nutrients and other inputs. This is a low-hanging fruit that needs to be addressed.

However, there are two concerns about a singular focus on technological efficiency measures: the total mitigation potential that can be delivered via technological improvements is insufficient, and this approach can further lock-in intensive systems of production through capital investments while also leading to trade-offs for soil health. At the same time, by focusing on the carbon tunnel vision, this approach fails to recognise that not only mitigation but also other environmental and health goals must be achieved simultaneously.

Recommendations for how countries can better support the transition

A **coordinated and systemic approach** is needed to address the changes required both on the production and consumption side. On the production side, policymakers must address farmers' dwindling economic position in the agri-food supply chains, lacking incentives to take up alternative ways of farming, as well as knowledge, tailored advice, and research needed to support farmers in making the transition. On the consumption side, coordinated food strategies, dietary guidelines, support for sustainable public procurement and development of markets for organic foods and plant-based foods are some key instruments to support the transition.

Common Agricultural Policy

In the current period, CEE countries can still significantly improve the climate impacts of their CSPs. The countries can:

- Introduce **environmental and climate ring-fencing for cross-cutting measures** such as investment interventions. The introduction of **degressivity and capping instruments**, especially in countries with oversized farm holdings, would lead to a fairer distribution of income support towards small and medium-sized holdings.
- Strengthen the **conditionalities** around soil health, permanent grassland protection, landscape features and peatland protection.
- Tie **coupled** payments for livestock to clear environmental and animal welfare standards and limit these payments to livestock raised extensively for purpose of supporting biodiversity, prevention of rural abandonment or other clearly defined environmental goals. Phase out coupled payments that currently go to intensively managed livestock and large dairy and cattle holdings.
- Set high environmental standards and objectives for **investments** funds going towards modernisation and productivity improvements, which currently represent the bulk of the investment budget for farm holdings. Substantially increase the share of the budget going towards targeted climate and environmental investments.
- Strengthen funding and incentive levels for **agroforestry** and **peatland rewetting** through eco-schemes, agri-environment-climate commitments, and advisory support. Introduce pilot projects for developing new agroforestry and paludiculture systems, as a game changer for increasing carbon stocks and improving resilience of agricultural landscapes. Additionally, improve funding for non-peat wetland restoration and landscape features to support resilience and water retention at landscape level.
- **Strengthen the requirements in eco-schemes** in arable systems to set higher ambitions for crop rotation, the inclusion of legumes, residue management, and support for landscape features. Due to the large area that is targeted under eco-schemes, any improvements to eco-schemes will have significant impacts on mitigation, resilience, and biodiversity.

- **Improve the funding and design of ambitious agri-environment-climate commitments** to further avoid deadweight requirements. Improve the flexibility for farmers and ensure sufficient advisory support to increase the interest and uptake in these measures.
- Significantly **strengthen animal welfare interventions** by shifting the support from minimal technical improvements (such as an increase of only 10% in living space) to ambitious requirements for access to outdoors and grazing. Remove support for so-called mega-stables (units with more than 500LSU) under animal welfare and coupled payments.
- **Improve eligibility criteria** for CAP payments to include trees, woody strips, and agroforestry systems. Improve eligibility criteria to also expand the range of paludiculture crops eligible for CAP payments.
- Develop targeted investment and interventions to support the value chains and market development for organic products, and advisory and research capacity for **organic farming**.
- Focus on the development of **institutional capacities, research, and advisory support** for agroecological practices, agroforestry and paludiculture.
- Begin a dialogue and evidence-building to support a **fundamental reorientation of the CAP** post 2028.

National Energy and Climate Plans

To avoid the risks of mitigation action undermining other goals, and to develop synergies with other environmental and public health needs, the NECPs should include **explicit objectives for the increased implementation** of agroecological practices, agroforestry and peatland rewetting, sustainable livestock, and sustainable food consumption.

As a minimum, countries should also aim to quantify the climate mitigation potential of their CAP interventions and develop national assessments for mitigation benefits from dietary changes. National scenarios for sustainable livestock production, and more integrated assessments for agri-food systems can guide policy discussions. These quantifications can serve as a basis for evaluating the need for revisions of the CAP Strategic Plans and development of additional policies.

Policies to support sustainable food consumption

To make progress in this area, a key first step is to **shift the perspective from individual responsibility to the role that food environments play** in determining food consumption. Individual decisions are not made in isolation but are significantly influenced by the contexts in which they occur. Factors such as the availability of sustainable products, pricing strategies, marketing tactics, and social norms shape decision environments and consumer behaviour. Sustainable food consumption can be promoted by shaping the food environments in such a way as to ensure that sustainable and healthy products and meals are the most affordable, available, accessible, and enjoyable. Sustainable and healthy choices become the easy choices.

National and local food strategies can support the improvements in food environments and ensure that the various policy instruments work together coherently. Various tools are available that can be part of this **policy mix**, such as:

1. **Campaigns, food advertising and marketing** address the socio-cultural contexts in which people make their decisions about food consumption. They can help to make sustainable diets more attractive and desirable.
2. **Educational and advisory services** can enable the acquisition of appropriate capabilities and competences to actively apply healthy and sustainable consumption e.g. through cooking skills, gardening skills, but also through the knowledge of the effects of an unsustainable diet and how to change this diet.
3. **Financial incentives** have an influence on supply and demand and can thus reduce the consumption of products containing sugar or animal products, for example, and promote the consumption of fruit and vegetables or plant-based products overall. The financial instruments include taxes, e.g. the meat taxation, the sugar tax, the withdrawal of the reduced VAT rate for animal products, the reduction of the VAT rate for fruit, vegetables and pulses to zero percent or the introduction of an excise tax on animal products.

4. Out-of-home catering can effectively shape food environments as it represents an area of food consumption that has been growing for years. Ensuring a more sustainable supply within this sector is crucial for driving the transformation of the agri-food system, especially because public consumption helps shape standards and perceptions of what is considered normal. State actors hold direct influence over this market, particularly in organised catering for public authorities, schools, or hospitals. They can also establish **procurement guidelines, legal regulations, advisory services, and standards**. Furthermore, the communal catering sector can play a pivotal role in fostering the development of bio-regional and plant-based value chains.

Setting clear goals, building societal support, and capacity

It is important to know where the leverage points for change are, but also that this alone is not enough. To speed up the development of the required policies for transition, several streams of actions are needed:

- 1. Increase awareness** of what the key elements of the sustainability transition are: how we produce food, dietary changes, and reduced food waste. A useful resource in this context is the webinar series “Climate Action in Agri-food Systems in Central Eastern Europe”.
- 2. Develop proof of concepts** in different countries and regions that will demonstrate the benefits of the sustainability transition for farmers and wider society.
- 3. Define clear and simple goals** that can be easily recognised and broadly accepted, such as concrete goals for peatland rewetting, the establishment of new agroforestry systems, areas utilised for organic farming, consumption of organic foods in schools, production of plant-based foods, ambitious animal welfare with outdoor access and grazing.
- 4. Build sufficient political and societal pressure** around these goals.
- 5. Develop a broad coalition of societal actors** working together to push for setting up and implementing these concrete goals.
- 6. Increase institutional capacities** to support and sustain the transition. While the top-down tools and targets can provide an impetus, bottom-up capacity building is needed to implement these targets through effective and well-designed measures in the CSPs and NECPs as well as in food policy. Efforts and resources are needed to build the capacity of researchers and officials to support decision-making and societal dialogue on how to implement the transition in specific contexts. European research programmes can support this. Exchanging experiences between countries that are more advanced and those that are just starting out with the integrated approach can also be very effective. This can include targeted technical assistance, such as was made available via the Twinning projects during the pre-accession phase and can support public administrations.
- 7. Improve cross-sectoral policy coordination.** For example, the demand-side for sustainable food consumption should be reflected in the NECPs and the CAP, and integration between these policies and broader food policies should be set up. This in turn requires better cross-sectoral coordination at ministry level, across ministries which cover agriculture, food, health, and climate policies, and other public agencies. Setting up a coordination unit for sustainable agri-food systems, with a concrete mandate and funding available for their work, can facilitate coordination.

These conditions build on and reinforce each other and can ultimately facilitate the wider transition towards climate friendly and resilient agri-food systems in CEE countries.