

Policy Brief

Roadmap for Ukraine's Transformative Adaptation

How can the Common Agriculture Policy
Enable Opportunities for Recovery, Agricultural Resilience,
and Institutional Reform

Authors:

Sachin D. Shah, The University of Texas at Austin, LBJ School of Public Affairs
Marina Tomer, University of Oklahoma, Department of Geography and Environmental Sustainability
Dr. Toni Klemm, Leibniz-Centre for Agricultural Landscape Research
Dr. Olga Trofimtseva, Ukraine Facility Platform
Dr. Michal Dudek, Department of European Integration, Institute of Rural and Agricultural Development Polish Academy of Sciences
Annabelle Sala, The University of Texas at Austin, LBJ School of Public Affairs (former student)
Dr. Vitalii Dankevych, Polissia National University
Evan Samsky, The University of Texas at Austin, LBJ School of Public Affairs

Contributors:

Sheila Baber, University of Maryland
Dr. Dylan Beaudette, Natural Resources Conservation Service
Dr. Deanna Behring, The Pennsylvania State University
Dr. Antonina Broyaka, Kansas State University
Dr. Lina Dotsenko, BRIDGES
Dr. Boris Faybishenko, Lawrence Berkeley National Laboratory
Dr. Nathan Hutson, The University of Texas at Austin, LBJ School of Public Affairs
Dr. Antar Jutla, University of Florida
Dr. Aziz Karimov, United Nation's Food and Agriculture Organization
Dr. Iryna Kazakova, Network of Permaculture Centers Ukraine
Dr. Nazar Kholod, Pacific Northwest National Laboratory
Dr. Vlad Konovalchuk, BRIDGES
Dr. Vitaliy Krupin, Institute of Rural and Agricultural Development, Polish Academy of Sciences
Dr. Pavlo Martyshev, Kyiv School of Economics
Dr. Iliana Mladenova, U.S. Department of Agriculture-Foreign Agricultural Service
Dr. Trevor Partridge, U.S. Geological Survey
Dr. Oksana Sakal, Land Management Institute, National Academy of Agrarian Sciences of Ukraine
Dr. Denys Sobolev, U.S. Department of Agriculture
Sevak Tsaturyan, U.S. Department of State
Dr. Barbara Wieliczko, Department of European Integration, Institute of Rural and Agricultural Development Polish Academy of Sciences



01

**WHY NOW?
UKRAINE'S AGRICULTURAL
MOMENT OF TRUTH**

This policy brief outlines a comprehensive strategic framework for Ukraine's agricultural transformation, addressing the complex interplay between European Union (EU) integration, climate adaptation, and postwar reconstruction.

The recommendations stem from two intensive, collaborative workshops held at the University of Texas at Austin Lyndon B. Johnson School of Public Affairs (October 2024) and the Polish Academy of Sciences in Warsaw (July 2025), bringing together Ukrainian experts, EU policymakers, and international researchers to develop science-based policy solutions.

The brief tackles the convergence of three critical challenges: the devastating impact of war on Ukraine's agricultural sector, increasing climate pressures threatening food production, and the stringent demands of EU alignment.

By synthesizing these multifaceted issues in the context of rebuilding a resilient, sustainable agricultural system, the document aims to provide policymakers with a holistic set of actionable recommendations across four core pillars (Figure 1):

Fore Core Pillars of Ukraine's Agricultural Transformation

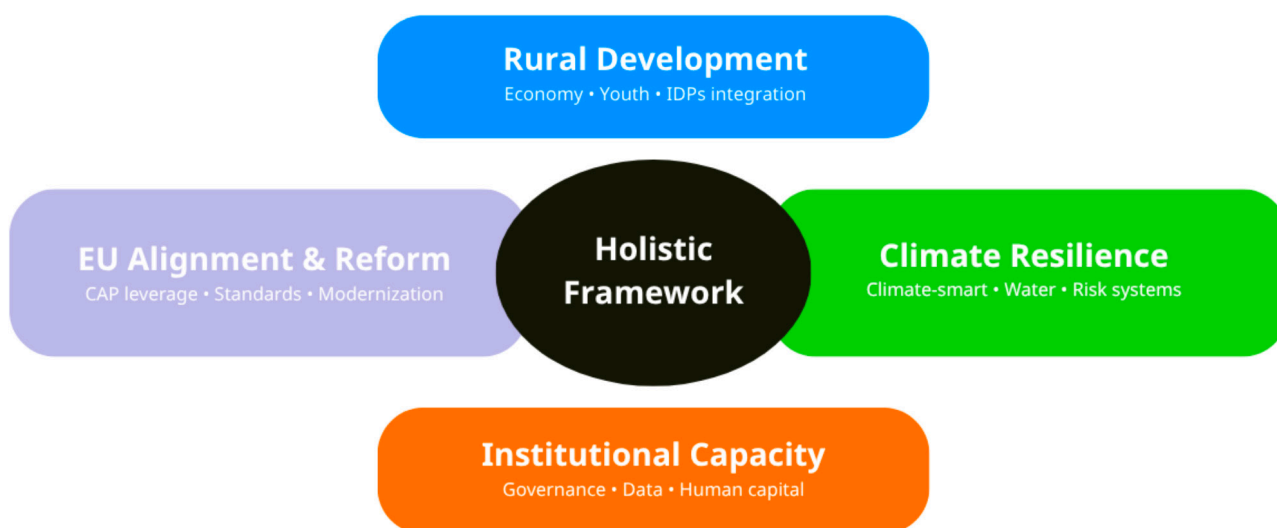


Figure 1. Four core pillars of Ukraine's Agricultural Transformation.

Institutional Capacity

This pillar focuses on strengthening Ukraine's agricultural governance structures, enhancing coordination between ministries, and developing robust data management systems to inform decision making. It emphasizes the need for transparent and efficient administrative processes that align with EU standards. Building institutional capacity requires investing in human capital through training and knowledge exchange, fostering trust and accountability within and between institutions, and creating mechanisms to integrate stakeholder input into policy design and implementation. Strengthening local and regional institutions alongside national bodies ensures that responses are context-specific, scalable, and resilient to both political and climatic shocks.

Climate Resilience

Recognizing the urgent need to adapt to changing climate patterns, this section outlines strategies for implementing climate-smart agricultural practices, investing in drought-resistant crop varieties, and developing

water management infrastructure to mitigate the effects of extreme weather events. It also emphasizes the need to strengthen early warning and risk management systems, promote soil health and biodiversity, and foster farmer education and extension services to build adaptive capacity. Integrating climate considerations into policy and planning at all levels, supported by robust data, monitoring, and inclusive stakeholder engagement, ensures that climate adaptation measures are sustainable, equitable, and aligned with long-term development and accession goals.

Rural Development

This pillar addresses the socioeconomic challenges faced by Ukraine's rural communities, proposing measures to diversify rural economies, improve access to education and healthcare, and create sustainable employment opportunities in the agricultural sector. It emphasizes empowering youth through targeted vocational training, entrepreneurship programs, and designing pathways to meaningful participation in rural decision-making, helping retain young people in rural areas, and revitalizing communities. Recognizing the unique needs of internally displaced persons (IDPs) resettling in rural regions, this pillar also calls for inclusive policies to integrate IDPs into local economies, ensure equitable access to land, housing, and social services, and foster social cohesion between host communities and newcomers.

EU Policy Alignment & Reform

The final pillar outlines a comprehensive roadmap for harmonizing Ukraine's agricultural policies with EU regulations and strategic priorities. Central to this effort is alignment with the Common Agricultural Policy (CAP), emphasizing the promotion of sustainable farming practices, support for rural development, and the establishment of fair competition and income support mechanisms for farmers. This pillar further underscores compliance with EU standards on food safety, environmental protection, and animal welfare, while integrating climate adaptation objectives to strengthen resilience under changing conditions. Achieving these goals requires targeted legislative reforms, institutional capacity-building, and coordinated implementation measures that not only meet EU accession criteria but also advance the broader objectives of the European Green Deal.

The Purpose of this Policy Blueprint

By bridging Ukrainian expertise with EU policy requirements, this blueprint offers a comprehensive roadmap for building resilient agricultural systems that meet the challenges of EU integration, support Ukraine's post-war recovery, and contribute to global food security. The recommendations are designed to transform Ukraine's agricultural sector into a modern, efficient, and sustainable system capable of withstanding future shocks and capitalizing on new opportunities within the European market.

The policy brief emphasizes the importance of a phased approach to implementation, recognizing the need for immediate actions to address war-related disruptions alongside long-term strategies for sustainable development. This highlights the potential for Ukraine to become a leader in climate-adaptive agriculture, leveraging its vast agricultural resources and the innovative capacity of its farming community. Achieving this potential will require coordinated institutional support, targeted investments, and inclusive policies that ensure all stakeholders can contribute to and benefit from the transition. Furthermore, the document underscores the critical role of international cooperation and financial support in realizing these ambitious goals. It calls for targeted investments from EU institutions, international financial organizations, and bilateral partners to support Ukraine's agricultural transformation.

By offering concrete, science-based recommendations across institutional, environmental, social, and policy domains, this policy brief provides a clear path for policymakers. The implementation of these strategies promises not only to revitalize Ukraine's agricultural sector in the face of current challenges, but also to position the country as a key player in ensuring European and global food security in the decades to come.

Agricultural Crossroads: From Crisis to Opportunities

Ukraine's agricultural sector is confronting a pivotal moment defined by uncertainty, upheaval, and opportunity. As the nation recovers from the severe shocks of war and grapples with mounting climate risks, it also faces the complex process of aligning its agri-food systems with the European Union standards required for EU accession. Navigating these challenges requires a transformational approach to adaptation — one that leverages both immediate recovery efforts and long-term reforms to the agricultural sector to secure agricultural resilience and sustainable growth for Ukraine and the wider region.

What is Transformational Adaptation?

Transformational adaptation in agriculture under the EU Common Agricultural Policy (CAP) means reimagining farming systems to address root causes of vulnerability rather than simply making incremental efficiency gains (Feola, 2015; Eriksen et al., 2021).

A transformative approach to agriculture necessitates fundamental shifts across institutions, livelihoods, and ecosystems, intentionally redistributing resources, fostering inclusive governance, and building adaptive pathways that prioritize equity, resilience, and sustainability in the face of environmental and social change. In the agrifood sector, this includes, for example, diversifying crops and adopting regenerative practices that build ecological resilience, reduce dependence on external inputs, and enhance carbon sequestration and water retention. It requires institutional reforms, to align with CAP policies on ecosystem services and climate targets, strengthening farmer knowledge-sharing networks, and securing land tenure to enable long-term investment in sustainable land practices. Investments in climate-smart irrigation, digital advisory services, and resilient rural infrastructure are essential to reduce post-harvest losses and expand market access.

Central to a just transition in agriculture is fostering inclusive rural development through value chains that integrate smallholders, women, and youth, and intentionally embedding climate adaptation into agricultural education and extension. Finally, transformational adaptation demands integrated policy and governance, linking agriculture with water, energy, and rural development, and creating adaptive governance systems that can evolve with changing climate conditions and through stakeholder feedback. This approach ensures that productivity, ecosystem health, and rural livelihoods can thrive in the face of a changing climate.

Current challenges: war devastation, climate pressures, EU integration demands

Ukraine's agricultural sector stands at the intersection of multiple, compounding crises. The devastating impact of war, accelerating climate change, and the substantial demands of EU integration have collectively threatened the viability and prospects of the country's food systems and the livelihoods of millions who depend on them.

- **War Devastation:** The ongoing conflict has caused catastrophic damage to farmland, infrastructure, and supply chains. An estimated USD 80 billion in losses have been recorded in the agricultural sector alone, with millions of hectares rendered unusable due to mines and environmental destruction (FAO, 2023). These disruptions have decimated rural livelihoods and drastically reduced Ukraine's export capacity, which is critical for both domestic stability and global markets (Kovalenko et al., 2024). The war has also led to long-term environmental degradation — including soil contamination, water pollution, and biodiversity loss — and has severely strained the institutional capacity needed for recovery and effective land management (Moldavan et al., 2023).

In addition to addressing these war-related losses, Ukraine's agricultural recovery must prioritize security-related measures as foundational to modernization. Systematic demining of farmland, monitoring of soil and water contamination, and restoring critical logistics infrastructure — roads, railways, ports, and storage — are immediate no-regret actions. These steps not only mitigate wartime risks but also create the conditions for closer EU alignment. Importantly, restoration of logistics systems should not be seen as a return to the pre-war status quo, but rather as an opportunity to construct a more resilient, EU-oriented model of agricultural infrastructure.

- **Climate Pressures:** Climate patterns across Eastern Europe, including Ukraine, are undergoing significant shifts due to global climate change (FAO 2022). In the coming decades, Ukraine is projected to experience warmer average temperatures, increased frequency and intensity of extreme events, such as droughts, heatwaves, and heavy precipitation, as well as greater variability in seasonal weather patterns (Semenova & Silzhe, 2020). Climate change exacerbates existing vulnerabilities, particularly in regions already affected by war, where adaptive capacity is weakest. The EU's CAP framework emphasizes adaptation through diversification, conservation agriculture, and nature-based solutions as vital strategies for building climate resilience. In Ukraine, implementing these measures also requires improved irrigation and water management, investment in drought-resistant crops, new food value chains to accommodate longer and novel crop rotations, and strengthening early warning and risk management systems to safeguard both people and ecosystems against escalating climate extremes.
- **EU Integration Demands:** As Ukraine pursues European Union membership, it must align national agricultural policies with the EU's complex regulatory framework. This includes rigorous standards on food safety, environmental stewardship, and sustainable production (Raik et al., 2024). Reforms are already underway, demonstrating Ukraine's commitment, but institutional and technical hurdles remain. At the same time, EU accession process offers a pathway to modernize the sector, strengthen competitiveness, and secure access to new markets.

Navigating these intersecting challenges requires an urgent, coordinated response to stabilize food production, support rural communities, and lay the groundwork for sustainable recovery and growth.

Importance of Building Resilient Agricultural Systems for Ukraine and Global Food Security

Building resilient agricultural systems in Ukraine is fundamental to the country's recovery and long-term prosperity, as well as to the stability of global food supplies. The capacity of Ukrainian agriculture to adapt, innovate, and withstand ongoing shocks will shape both national food security and the country's continued role as a breadbasket for international markets.

- **National Recovery and Rural Stability:** A resilient agricultural sector anchors Ukraine's economic recovery, supporting millions of jobs and providing essential income for rural families. Rehabilitating degraded land, restoring infrastructure, and supporting farmer wellbeing are prerequisites for sustainable development and social cohesion in post-conflict regions (Sachs et al., 1995).
- **Global Supply Chains and Food Security:** Ukraine is a critical supplier of wheat, maize, and sunflower oil to global markets; interruptions in its exports can drive volatility in food prices and threaten food access in import-dependent countries (Orenstein et al., 2023). Ensuring Ukraine's productive capacity is restored and protected is central to stabilizing global food supply chains (Sachs et al., 1995).
- **Sustainable Innovation and Institutional Reform:** Embracing CAP principles is not only necessary for Ukraine's accession to the EU, it also allows Ukraine to transition from ecologically and socially determined monocultures toward more sustainable, environmentally sound agricultural practices. Innovation in crop diversification, climate-smart technologies, and effective policy reforms are essential for building systemic resilience that endures beyond immediate crises and strengthens long-term food security. These challenges are heightened by the reality that Russia is actively weaponizing food security as part of its hybrid warfare strategy. Against this backdrop, Ukraine's integration into the EU represents a genuine win-win: for Ukraine, it accelerates modernization and resilience; for the EU, it strengthens food security, solidifies supply chains, and enhances strategic autonomy in global markets. Framing Ukraine's agricultural transformation in this dual context underscores both the urgency of immediate action and the far-reaching geopolitical significance of the recommendations that follow.

Bi-Lateral Workshops: Forging Solutions Through Collaboration

As Ukraine advances recovery, resilience, and EU integration, bilateral workshops provide an important

opportunity to mobilize partnerships, align priorities, and translate dialogue into concrete policies for a sustainable path forward. This policy brief distills the outcomes of two workshops, which convened Ukrainian policymakers, researchers, agricultural leaders, and international experts in a structured, participatory process to build a shared vision, refine transformational adaptation pathways, and develop actionable strategies rooted in local realities and aligned with European frameworks.

The workshops were designed to:

- Foster *cross-sectoral knowledge exchange*, ensuring that Ukraine's adaptation efforts leverage the best available science and international experience.
- Develop *a common framework* for agricultural adaptation and reform in partnership with government, scientific, industry, and civil society stakeholders.
- Translate scenario planning and stakeholder input into *tangible recommendations* to drive effective, EU-aligned transformation in Ukraine's agri-food systems.

1) Washington DC Workshop: Scenario Planning and Setting the Strategic Agenda

The first workshop, a three-day Climate Adaptation Scenario Planning Workshop for Ukraine's Food Security (October 22–24, 2024), marked an unprecedented convergence of stakeholders committed to tackling one of Europe's most pressing challenges. Co-hosted by the Department of the Interior's International Technical Assistance Program, the U.S. Geological Survey, and the University of Texas at Austin's LBJ School of Public Affairs, the initiative brought together a wide range of Ukrainian stakeholders alongside U.S. and international experts under extraordinary circumstances. Its primary objective was to co-develop plausible scenarios for Ukraine's agricultural sector through 2030 in the face of geopolitical instability and accelerating climate risks.

The workshop directly addressed Ukraine's priority of adopting more efficient agricultural practices to stabilize crop yields, expand export capacity, and meet the requirements of the EU's Common Agricultural Policy (CAP) for accession. This dual mandate — responding to immediate crises while aligning with long-term EU integration — framed every aspect of the scenario planning process.

Through a guided participatory scenario planning process, participants:

- Examined current and projected climate impacts, institutional constraints, and opportunities for sustainability within the context of both wartime disruption and EU accession requirements.
- Identified principal drivers of change, including water and land resources, adoption of climate-smart agriculture, and institutional capacity — all explored through the lens of CAP compliance and European integration standards.
- Created a matrix of plausible future scenarios and guided by these visions, collaboratively developed adaptation strategies aiming to balance food security, economic stability, and ecosystem protection while maintaining Ukraine's role as a global agricultural powerhouse.
- Fostered social learning, trust-building, and a shared understanding of challenges and opportunities, laying the foundation for continued collaboration and priority setting in subsequent discussions — particularly the follow-up Warsaw workshop focused on implementation planning.

From this dialogue, six priority climate action areas emerged as central to building a resilient, sustainable, and competitive agricultural sector in Ukraine:

- **Energy-Water-Food Nexus:** Advancing integrated resource planning to strengthen system-wide resilience and ensure compliance with EU environmental standards.

- **Risk Management and Finance:** Designing insurance and financial instruments to buffer farmers from shocks and uncertainty — critical for both wartime recovery and CAP-compliant risk management frameworks.
- **Education and Extension:** Expanding training and knowledge-sharing to boost adaptive capacity, strengthen climate resilience, and ensure farmer readiness for EU agricultural practices and standards.
- **Institutional Reform:** Strengthening Ukraine’s agricultural governance by improving policy implementation and cross-ministerial coordination, with a focus on EU accession requirements and compliance with the Common Agricultural Policy (CAP).
- **Innovation and Digitalization:** Accelerating the adoption of technology and data-driven approaches that meet EU digitalization objectives while addressing Ukraine’s unique post-conflict modernization needs.
- **Data and Evidence:** Enhancing data collection and sharing to support evidence-based decisions and enable the monitoring and evaluation systems required for CAP participation.

These outcomes defined a shared roadmap for transformative adaptation that simultaneously addresses immediate crisis response and long-term European integration objectives. The workshop served as the foundational step toward the comprehensive four-pillar adaptation framework detailed in this policy blueprint: advancing technology and digitalization, implementing farmer insurance and financial instruments, strengthening farmer education and extension services, and improving institutional adaptation and capacity. This foundation enabled continued prioritization and operational design in the subsequent Warsaw workshop, where implementation strategies were refined with direct input from EU officials and agricultural experts.

2) Warsaw Workshop: Prioritizing Actions and Aligning with EU Priorities

Building on the groundwork laid in Washington, the second workshop — “Building Resilient Futures: Ukraine’s Agricultural Transformation Through Climate Adaptation and Institutional Coordination” — convened July 1-3, 2025, at the Polish Academy of Sciences in Warsaw, Poland. This strategic location was chosen deliberately, allowing participants to benefit from Poland’s own EU accession experience while developing practical implementation pathways for Ukraine’s agricultural transformation.

The workshop brought together international experts representing a carefully curated stakeholder community designed to refine, prioritize, and operationalize the previously co-developed pathways developed in Washington. Co-hosted by the University of Texas at Austin Lyndon B. Johnson School of Public Affairs, the Ukraine Facility Platform, the Polish Academy of Sciences Institute of Rural and Agricultural Development, and Polissia National University, this session incorporated European policy experts and drew extensively on Poland’s own accession experience to surface pragmatic lessons for Ukraine.

Through participatory exercises, drawing on scenario planning and institutional analysis, participants analyzed:

- The feasibility, urgency, and institutional responsibility associated with each proposed action, identifying practical pathways for implementation and clarifying roles across ministries and agencies — ensuring solutions emerged from collaborative dialogue rather than external prescription.
- Alignment with the European Green Deal, the CAP, and broader EU funding instruments and environmental strategies, with particular attention to leveraging Poland’s successful integration experience.
- Mechanisms to embed stakeholder engagement and transparency into the reform process, fostering trust, inclusivity, and accountability as Ukraine progresses toward EU membership.

From the collaborative analysis, four overarching thematic priorities were defined as core pillars spanning from institutional capacity to rural development:

- **Environmental Sustainability:** Advancing sustainable agricultural practices, restoration, and climate adaptation aligned with EU environmental standards and Green Deal objectives.
- **Agricultural Innovation and Knowledge-Transfer:** Driving technology adoption and skill development that advance EU digitalization goals, support climate-smart practices, and address Ukraine's post-conflict modernization needs.
- **Youth and Employment:** Sustaining generational renewal and creating rural employment opportunities that support demographic stability and EU labor market integration.
- **Finances and Risk Management:** Widening access to financial tools and insurance to manage risk and promote investment, specifically designed for CAP compliance and EU funding mechanism alignment.

Collaborative Design Process and Impact

These workshops underscored the value of evidence-based, participatory, cross-border collaboration in tackling Ukraine's vast post-war and climate-related challenges. The participatory scenario planning method, combined with institutional analysis, ensured that solutions emerged from collaborative dialogue rather than external prescription, allowing stakeholders to transform complex, uncertain futures into concrete, context-sensitive priorities that reflect both Ukrainian expertise and EU policy requirements.

The science-policy interface proved central to the workshop's success, with participants emphasizing that science provides objective, data-driven inputs for informed agricultural policymaking, while scenario-based research helps policymakers understand consequences of alternative interventions. The integration of interdisciplinary approaches ensures food, water, and energy security in sustainable systems, while participatory approaches ensure local Ukrainian context reflects in EU policy formulation.

The workshops established a strategic framework with concrete deliverables: an implementation roadmap with concrete timelines and accountability mechanisms, funding pathways aligned with EU Common Agricultural Policy instruments, and science-policy integration that bridges Ukrainian expertise with EU policy requirements. This comprehensive approach catalyzed a set of actionable recommendations for a resilient, inclusive, and competitive Ukrainian agricultural sector — firmly situated within Ukraine's EU accession agenda and the evolving CAP framework.

By leveraging expert knowledge and the collective wisdom of local actors, the workshops provided a pragmatic and legitimate foundation for policy reform, institutional strengthening, and future investment.



02

**HOW CAN UKRAINE ALIGN WITH
EUROPE'S AGRICULTURAL VISION?**

Ukraine's Agricultural Reality Check

Ukraine's agricultural sector faces a convergence of war-related disruptions, climate stressors, and systemic governance challenges (Broyaka, 2025; World Bank, 2022). The full-scale Russian invasion has damaged infrastructure, contaminated farmland, and disrupted logistics, creating high costs and export uncertainties (FAO, 2023). Climate change compounds these pressures, with increasing heat and drought risk, heightened flood risk in river basins, low on-farm water storage, and uneven irrigation efficiency (Semenova & Vicente-Serrano, 2024; Moldavan et al., 2023). Production systems are constrained by high dependence on imported inputs, soil degradation, declining biodiversity, and erosion, particularly in the steppe region (Semenova & Silzhe, 2020; Ostroukh et al., 2020). Agricultural governance remains fragmented, while insecure land tenure for small-scale farmers discourages long-term investments in sustainable land management, climate-resilient infrastructure, and regenerative practices that could enhance productivity and ecological health (Moldavan et al., 2023). Disparities between large agribusinesses and smallholders persist, and risk management tools — such as crop insurance and credit — are underdeveloped (FAO, 2023; OECD, 2021). Advisory services are under-resourced, and access to digital tools is uneven, limiting the uptake of climate-smart practices (OECD, 2021; World Bank, 2022).

To address these vulnerabilities, Ukraine must prioritize water and drought management, modernizing and decentralizing irrigation while promoting soil-moisture retention through practices like cover cropping, reduced tillage, and agroforestry (FAO, 2021; Moldavan et al., 2023). Strengthening soil and ecosystem health through measures that support Good Agricultural and Environmental Condition (GAEC)-type measures, improving farm-level monitoring and traceability, and expanding public-private crop insurance schemes are critical steps (European Commission, 2023; OECD, 2021). Institutional reforms should establish secure land tenure mechanisms, expand and strengthen Water User Organizations and cooperatives, and create pathways that guarantee equitable access for women, youth, internally displaced persons, and smallholders (Moldavan, 2023; Brown, 2023). Upgraded extension systems, enriched with climate-smart curricula, farmer-to-farmer networks, and digital decision support, are essential, alongside better-resourced regulatory enforcement for standards in soil management, water quality, and integrated pest management (FAO, 2023; European Commission, 2023).

In moving toward EU alignment, Ukraine must progressively adopt CAP conditionality, eco-schemes, and agri-environment-climate measures that incentivize carbon sequestration, biodiversity protection, and precision input use (European Commission, 2023; OECD, 2021). Compliance with the Nitrates and Water Framework Directives will require nutrient action programs, catchment-based water planning, and strengthened laboratory capacity (European Commission, 2023). Integrated Pest Management plans, animal welfare standards, and enhanced food safety and traceability systems will be essential to meet EU market requirements (European Commission, 2023; FAO, 2023). Building governance and delivery systems, such as an Integrated Administration and Control System (IACS), Land Parcel Identification System (LPIS), and farm data networks, will enable effective policy implementation (OECD, 2021; European Commission, 2023). Aligning adaptation priorities with EU agricultural standards, while resourcing enforcement, finance, and inclusive institutions, will not only reduce climate risk but also accelerate rural recovery and secure market access (World Bank, 2022; Broyaka et al., 2025).

Decoding the European Union Framework: CAP as Ukraine's Pathway

The Common Agricultural Policy (CAP) is the European Union's primary mechanism for ensuring a sustainable, competitive, and resilient agricultural sector. It operates through two main pillars: direct payments and market measures (Pillar I) and rural development programs (Pillar II) (European Commission, 2023a). CAP conditionality is grounded in *Good Agricultural and Environmental Condition (GAEC) and Statutory Management Requirements (SMR)*, which set mandatory environmental and management standards as a prerequisite for receiving payments (European Commission, 2023b). The 2023–2027 CAP reform introduced eco-schemes — annual compensation payments to farmers under Pillar I — for farmers adopting voluntary climate- and environment-friendly practices that go beyond those required under conditionality, such as carbon farming, cover cropping, agro-ecology and agro-forestry, biodiversity enhancement, and precision agriculture (Matthews, 2022; European Commission, 2023c).

Under Pillar II, co-financed rural development measures support infrastructure modernization, advisory services, innovation, and diversification of rural economies (European Commission, 2021). Administrative and monitoring

systems — such as the Integrated Administration and Control System (IACS) and the Land Parcel Identification System (LPIS) — ensure compliance, transparency, and efficient allocation of funds (European Court of Auditors, 2021). For Ukraine, alignment with the CAP framework represents not only a prerequisite for EU accession but also a roadmap for modernizing governance, embedding climate adaptation into agricultural policy, and accessing substantial rural development resources (OECD, 2021; FAO, 2023)

Opportunities and Challenges for Ukraine

CAP alignment presents significant opportunities for Ukraine's agriculture sector. Access to CAP funding could accelerate the modernization of agricultural infrastructure, promote sustainable land and water management, and strengthen rural livelihoods (OECD, 2021; FAO, 2023). The GAEC and SMR standards offer a structured pathway to improving soil health, protecting water quality, and safeguarding biodiversity. Eco-schemes could incentivize the widespread adoption of regenerative and climate-resilient farming practices, while integration into EU-wide monitoring systems would enhance data transparency, traceability, and evidence-based policymaking (European Commission, 2023b; European Commission, 2023c).

However, Ukraine's challenges to meeting CAPs environmental and administrative requirements are considerable and will require substantial institutional capacity building, particularly in inspection, enforcement, and data management (World Bank, 2022). Compliance costs — such as upgrading manure storage facilities or implementing precision agriculture — may be prohibitive for smallholders without targeted subsidies or technical assistance (Moldavan, 2023; Broyaka et al., 2025). There is also a risk of benefit concentration, with larger agribusinesses better positioned to absorb compliance costs and secure CAP payments, potentially widening rural inequalities (OECD, 2021). Larger businesses (both economically and geographically) with more diverse crop portfolios and operations in several locations may also be able to cope with localized environmental risks, for example, extreme rainfall or storms, more easily, putting additional disadvantages on smallholder farms. Furthermore, Ukraine's fragmented governance and overlapping institutional mandates could slow implementation, while political and economic instability may disrupt the reform timeline (World Bank, 2022; Broyaka et al., 2025). To fully leverage CAP accession, Ukraine will need strategic investments in extension services, digital infrastructure, and inclusive governance, ensuring that CAP alignment becomes a catalyst for both productivity and resilience while reducing disparities among farmers.

Building Climate Resilience within EU Standards: Aligning Ukraine's Agricultural Adaptation with the Common Agricultural Policy

As Ukraine advances toward EU accession, integrating climate adaptation into national agricultural policies offers a unique opportunity to align with the Common Agricultural Policy (CAP) framework, embedding resilience within environmental sustainability, innovation, and rural development goals. The multi-stakeholder workshops identified priority adaptation measures that respond to both immediate climate vulnerabilities and long-term structural challenges. Each measure can be systematically linked to existing CAP instruments, ensuring policy coherence and access to EU support mechanisms.

1. Environmental Sustainability

Ukraine's agricultural landscapes are increasingly vulnerable to drought, soil degradation, and biodiversity loss. Participants highlighted the need for policies and programs that:

- Scale climate-smart practices: conservation tillage, cover cropping, agroforestry, integrated pest management.
- Restore degraded ecosystems: strengthen soil health, enhance water retention, rebuild biodiversity corridors.

These align directly with:

- Good Agricultural and Environmental Condition (GAEC) standards for compliance.
- Eco-schemes under CAP Pillar I to incentivize voluntary climate-positive actions.
- Agri-Environment-Climate Measures (AECMs) under CAP Pillar II for long-term carbon sequestration, biodiversity enhancement, and water stewardship.

2. Agricultural Innovation and Knowledge Transfer

Resilience depends on rapid access to innovation, including

- Precision agriculture technologies.
- Drought-tolerant crop varieties.
- Digital decision-support and climate-informed farm management tools.

Knowledge uptake should be accelerated through:

- Strengthened extension services and farmer-to-farmer learning networks, modeled after the US cooperative extension system.
- Public–private innovation partnerships that promote technology transfer and climate-smart solutions.

Заходи розвитку сільських регіонів у рамках САП можуть фінансувати ці послуги, інноваційні хаби та операційні групи EIP-AGRI, забезпечуючи впровадження інновацій безпосередньо у системи виробництва.

3. Youth and Employment

With an aging farming population and persistent rural outmigration, generational renewal is critical. Key actions include:

- Vocational training on climate-smart farming techniques and precision agriculture technologies.
- Targeted entrepreneurship programs and financial incentives for youth-led farming enterprises.
- Economic programs to incentivize the production of high revenue crops.

These relate to CAP rural development tools supporting skills training, start-up aid, and generational renewal measures.

4. Finance and Risk Management

Adaptation requires affordable finance and robust risk management, including:

- Access to low-interest credit for modernization of farm operations.
 - Co-financed crop insurance schemes.
 - Climate risk assessment tools and income stabilization instruments.
- CAP alignment: Pillar II risk management measures — including insurance, mutual funds, and income stabilization — can be adapted to Ukraine’s institutional context once data infrastructure and administrative capacity are strengthened.

Table 1. Connecting Ukraine’s adaptation needs to existing CAP instruments

Priority Area	Relevant CAP Instrument(s)
Environmental Sustainability	GAEC, Eco-schemes, AECMs
Innovation and Knowledge Transfer	Rural development, EIP-AGRI
Youth and Employment	Rural development, generational renewal measures
Finance and Risk Management	Risk management toolkit

Synergies and Potential Conflicts

Most adaptation priorities reinforce CAP objectives in environmental protection, innovation, and rural development. Eco-schemes and AECMs can directly support climate-smart practices identified by stakeholders, while GAEC ensures a sustainability baseline.

However, risks remain:

- Strict compliance could disproportionately burden smallholders without tailored support.
- Production-focused CAP incentives, if poorly designed, may undermine long-term climate and environmental sustainability goals.

Recommendation: Embed adaptation strategies early in Ukraine's CAP Strategic Plan to maximize synergies, ensure inclusion of smallholder farmers, and safeguard climate ambition against policy trade-offs.



03

**WHO LEADS
INSTITUTIONAL COORDINATION
AND HOW WILL IT BE FUNDED?**

Who Holds the Key to Change?

The Ministry of Economy, Environment and Agriculture of Ukraine (MEEA) — formed through the merger of the former Ministry of Agrarian Policy and Food, the Ministry of Economy, and the Ministry of Environmental Protection and Natural Resources — is empowered as the single accountable owner for CAP alignment and agricultural climate adaptation, with a formal mandate to convene line ministries and oblast administrations. MEEA should chair a National Council for Climate-Resilient Agriculture (NCCRA) — a standing, decree-based body that integrates climate, water, land, demining, and rural development into one decision loop. Members would include the Ministry for Communities, Territories and Infrastructure Development (Recovery/Restoration), Ministry of Digital Transformation (data stack), Ministry of Education and Science (AKIS, extension, and curricula), and the State Service of Ukraine for Geodesy, Cartography and Cadastre (Gosgeokadastr) for LPIS and land governance, alongside other relevant actors.

The NCCRA should task a Technical Secretariat inside MEEA (with seconded experts from line ministries and EU-funded Technical Assistance) to manage day-to-day operations: workplans, indicator tracking, donor coordination, and CAP-style annual performance reporting. This mirrors EU member-state practice, where agriculture ministries lead CAP Strategic Plans while formally integrating climate, environment, and rural development through interministerial mechanisms.

Breaking Down Silos: Cross-Ministerial Coordination

To ensure effective collaboration across ministries, the Interministerial Program Board (IPB) under the NCCRA will coordinate through four specialized taskforces. Table 2 outlines thematic areas, lead institutions, supporting partners, and core responsibilities.

Table 2. Proposed specialized taskforces addressing cross-cutting social and environmental issues.

Task-Force	Lead Institution	Key Partners	Core Responsibilities
Data & Compliance (IACS/LPIS/GAEC/AKIS)	MEEA	Gosgeokadastr, MEPNR, MinDigital	Deliver LPIS aligned with IACS; establish producer-facing portal for schemes, e-applications, monitoring, and AKIS advisory.
Climate & Water	MEPNR	MEEA, State Agency of Water Resources	Scale climate-smart agronomy; manage drought/flood risk; restore soil and peatlands linked to GAEC and Eco-schemes.
Finance & Risk (Demining, Insurance, Blended Finance)	Ministry of Economy	MEEA	Channel Ukraine Facility, World Bank, and IFI funds into farmer credit, area-yield index insurance, and agricultural demining.

Implementation & Regions	MEEA	Oblast administrations	Roll out Agri-Resilience Hubs for extension, training, digital tools, eco-scheme pilots; integrate monitoring into CAP frameworks.
-------------------------------------	------	------------------------	--

Unlocking CAP Funding: Strategic Resource Alignment

Ukraine’s agricultural transformation hinges on institutional reform and on the ability to strategically align domestic resources with international financing streams. Pre-accession readiness requires mobilizing diverse funding — from the EU Ukraine Facility to International Financial Institutions (IFIs), Horizon Europe, and bilateral aid — while clearly mapping interventions to the CAP’s logic of direct payments, eco-schemes, and rural development. Table 3 organizes stakeholder insights on major funding sources, their thematic focus, and how they can be leveraged to advance CAP readiness and postwar resilience.

Table 3. Major funding sources, lead institutions, and their thematic focus to advance CAP readiness and postwar resilience.

Funding Instrument	Lead Entity / Channel	Thematic Focus	Potential Applications for Ukraine
EU Ukraine Facility (€50B, 2024–27)	European Commission and Government of Ukraine	Macro-financial support; reforms; investments	Core framework for agricultural recovery, demining, land governance, green transition, and rural development.
Horizon Europe (Clusters 5 & 6)	EU Research & Innovation	R&D, digitalization, climate-smart technologies	Pilot drought-resilient crops, on-farm water management, digital ag services, and farmer innovation groups.
EIP-AGRI Operational Groups	EU / Member State partners	Farmer-led innovation & applied research	Support farmer–researcher partnerships to co-develop and test sustainable farming practices.
World Bank Recovery Lending	World Bank / Ministry of Economy	Infrastructure, agriculture, land, energy	Agricultural demining, irrigation, logistics, and input supply support.
FAO Programs	FAO / MEEA	Mine action, technical assistance, emergency support	Mine clearance on farmland, distribution of seeds, tools, and advisory packages.
European Investment Bank (EIB) and the European Bank for Reconstruction and Development (EBRD)	EIB, EBRD	Agribusiness modernization, value chains	Storage, cold-chain, renewable energy for farms and SMEs, logistics corridors.
National Readiness Investments	MEEA / Gosgeokadastr	Governance, compliance, extension	Build LPIS/IACS, establish Paying Agency, set up AKIS hubs and farmer advisory systems.

From Planning to Practice: Making Implementation Work

Moving from strategic planning into visible, on-the-ground change requires a delivery architecture that integrates coordination, regional implementation, and performance management. Ukraine must combine central-level leadership with strong regional hubs and a system of measurable results aligned with CAP standards. Table 4 outlines the key delivery mechanisms, the institutions responsible, and the practical outputs they should generate in the short and medium term.

Table 4. Institutions responsible for delivery mechanisms and the practical outputs they should generate.

Delivery Mechanism	Lead Institution	Key Partners	Core Functions / Outputs
National Delivery Unit (NDU)	MEEA (Technical Secretariat)	NCCRA, IPB	Drive 90-day implementation sprints; monitor progress; unblock bottlenecks; coordinate reporting to Ukraine Facility and EU.
Regional Agri-Resilience Hubs	MEEA with Oblast Administrations	Universities, Extension Services, NGOs	Deliver extension and training; pilot eco-schemes; onboard farmers to LPIS/AKIS; serve as last-mile implementers.
Performance Framework	MEEA / NCCRA	MinDigital, EU TA	Adopt EU CAP-style performance logic (targets, indicators, annual reviews); publish public dashboards for transparency.
No-Regret Priorities	MEEA, MinEconomy, MEPNR	Donors, IFIs, FAO	Immediate actions: agricultural demining, LPIS/IACS build-out, drought/flood risk tools, soil health and water-use grants, and advisory upskilling.
Farmer-Facing Dashboard	MinDigital / MEEA	Oblast Hubs	Real-time updates on schemes, GAEC compliance guidance, application deadlines, and advisory resources.



04

**WHAT DOES SUCCESS
LOOK LIKE?**

The Transformation Blueprint: Summary of Key Recommendations

Recap of critical policy changes and institutional reforms

Success requires building an effective institutional architecture capable of coordinating activities across ministries and agencies. This entails unifying rules and procedures, creating transparent mechanisms for managing land and agricultural resources, and implementing a monitoring system that aligns with European Union requirements. It is essential that reforms aim not only at formal convergence with European standards, but also at improving governance efficiency, reducing bureaucracy, and strengthening the trust of citizens and businesses in state institutions.

Another critical aspect is the reform of the legislative framework to address climate challenges and the realities of war. In particular, land and environmental regulations must be adapted to new conditions, with mechanisms for preventing soil degradation, water pollution, and biodiversity loss. This also applies to agricultural policy, where it is vital to design a clear system of subsidies and incentives for farmers committed to innovative and climate-smart practices. Such reforms will provide the foundation for a sustainable and competitive agricultural sector. Finally, success will be defined by the ability to implement comprehensive reforms in conditions of political and economic instability. This means the state must ensure policy continuity regardless of changes in government, relying on institutional mechanisms that guarantee the long-term sustainability of strategic decisions. Only systematic and consistent reforms can prevent fragmentation and create the real prerequisites for Ukraine's integration into European space.

Emphasis on the importance of stakeholder collaboration and adaptive management

The success of Ukraine's agricultural transformation depends on the active engagement of all key stakeholders – from central government bodies and local administrations to farming enterprises, businesses, and civil society. Collaboration across these levels ensures not only the formal adoption of decisions but also their legitimacy and practical applicability. Particular attention should be given to involving farmers' associations and cooperatives, which can serve as effective channels for two-way dialogue between the state and producers.

Adaptive governance requires the ability of policies to respond quickly to unpredictable changes, such as emerging climate risks, political shifts, or economic crises. This means that reforms must incorporate monitoring and evaluation mechanisms that allow strategies to be adjusted in real time. Inclusiveness in these processes ensures that the interests of diverse groups are considered, including youth, women, displaced persons, and smallholder farmers, who are often the most vulnerable.

Moreover, international cooperation is a critical factor in advancing adaptive governance. The European Union, international financial institutions, and partner countries can provide not only financial resources but also expert support, fostering the exchange of knowledge and best practices. Such collaboration builds strong partnership networks and enables Ukraine to leverage global experience while tailoring it to national realities.

Potential impact on Ukraine's agricultural sector and global food security

Transforming Ukraine's agricultural sector is central to recovery, with major implications for global food security. A renewed sector can stabilize international markets, strengthen the national economy, and offer a model of sustainable agriculture for other countries in post-conflict transition.

The benefits of transforming Ukraine's agricultural sector extend across multiple scales. The following areas highlight how recovery and EU alignment can shape global food systems, national economic growth, and international models of sustainable agriculture.

1. Restoring Ukraine's role in global markets.

A successful transformation of the agricultural sector will enable Ukraine to restore and strengthen its status as a reliable supplier of grain and oilseeds to global markets. This is particularly important in the face of global challenges, where disruptions in supply chains create risks of food shortages in import-dependent countries. The recovery of Ukrainian exports will contribute to stabilizing prices and ensuring food security for millions of people worldwide.

2. National economic effects.

At the national level, the transformation of the agricultural sector will serve as a foundation for economic growth, job preservation, and the development of rural areas. Investments in infrastructure recovery, land restoration, and the development of smallholder farms will help reduce social tensions and support the integration of internally displaced persons into local communities. In turn, this will foster stronger social cohesion and improve the quality of life in rural regions.

3. International significance and a model for other countries.

On the global stage, Ukraine's example can become a model for other countries undergoing post-conflict recovery. The combination of European approaches with unique national resources provides an opportunity to establish a new standard of sustainable agriculture. This will encourage the formation of international partnerships and expand Ukraine's role in addressing global food security challenges.

Charting the Path Forward: From Vision to Reality

Ukraine's agricultural transformation requires a carefully sequenced implementation strategy that bridges immediate crisis response with long-term structural reform. The pathway from current challenges to full EU integration demands coordinated action across three distinct but interconnected timeframes, each building upon the achievements of the previous phase while maintaining flexibility to adapt to evolving circumstances.

This implementation framework recognizes that success depends not merely on technical solutions but on creating synergies between institutional reform, capacity building, and stakeholder engagement. The following roadmap outlines concrete actions organized by timeframe, ensuring that urgent needs are addressed while simultaneously laying the groundwork for sustainable transformation aligned with CAP requirements

Immediate actions for policy implementation

The foundation for Ukraine's agricultural transformation must be established through rapid, targeted interventions that address both war-related disruptions and institutional prerequisites for reform. These immediate actions serve dual purposes: stabilizing the sector while creating the administrative and technical infrastructure necessary for deeper transformation.

Priority interventions include establishing comprehensive soil monitoring systems linked to updated cadastral databases, ensuring both transparency in land management and compliance with EU environmental standards. Concurrently, pilot programs testing compliance with the EU Nitrates Directive should be launched in selected regions, providing practical experience in meeting European environmental requirements while improving local soil and water quality. These technical measures must be supported by clear institutional frameworks, including the implementation of RACI (Responsible, Accountable, Consulted, Informed) matrices across relevant ministries to eliminate functional duplication and accelerate decision-making processes.

Capacity building efforts should focus on strengthening agricultural extension services through innovative public-private-NGO partnerships, ensuring that knowledge transfer mechanisms reach all farming communities.

Targeted training programs must prioritize vulnerable groups—including smallholder farmers, women, military veterans, and internally displaced persons—equipping them with the skills necessary for both immediate recovery and future EU market participation. These human capital investments should be complemented by pilot projects addressing climate vulnerabilities, particularly irrigation modernization initiatives and drought-resistant crop trials that demonstrate practical adaptation strategies while building local expertise in climate-smart agriculture.

Medium-term strategies for policy implementation

The medium-term phase focuses on scaling successful pilots into comprehensive national frameworks while deepening institutional reforms necessary for EU alignment. This period represents the critical transition from emergency response to systematic transformation, requiring sustained political commitment and coordinated resource mobilization.

Successful pilot initiatives in irrigation infrastructure, soil health monitoring, and extension services must be expanded into nationwide programs, supported by dedicated funding mechanisms and standardized implementation protocols. Cross-ministerial coordination, tested during the immediate phase, should be institutionalized through formal governance structures that ensure policy coherence across agricultural, environmental, and rural development domains. This institutional consolidation provides the foundation for implementing comprehensive climate adaptation measures, including a national land use strategy that optimizes the balance between productive agriculture and ecosystem conservation.

The introduction of payments for ecosystem services represents a paradigm shift in agricultural support, incentivizing farmers to adopt practices that deliver environmental benefits while maintaining productive capacity. These market-based instruments must be accompanied by enhanced financial access for smallholder farmers through innovative mechanisms such as warehouse receipt systems, agricultural insurance products, and targeted credit programs. Rural employment initiatives should leverage agricultural modernization to create opportunities for youth, veterans, and displaced populations, fostering inclusive growth that strengthens social cohesion in rural communities.

EU policy alignment accelerates during this phase, with Ukrainian agricultural policies progressively harmonizing with CAP instruments including eco-schemes, Basic Income Support for Sustainability (BISS), and Complementary Redistributive Income Support for Sustainability (CRISS). Technical and administrative capacity must be systematically strengthened to establish and operate a functional Paying Agency capable of managing EU funds according to stringent accountability standards. This institutional development ensures that Ukraine can effectively absorb and deploy pre-accession support while building credibility with European partners.

Long-term vision for Ukraine's agricultural transformation and EU integration

1. Harmonization with the EU's Common Agricultural Policy (CAP)

In the long term, success will mean the full alignment of Ukraine's agricultural policy with the requirements of the EU's CAP. This includes the implementation of environmental standards, the development of digital infrastructure for land resource management, and the establishment of transparent support mechanisms for farmers. As a result, the agricultural sector will become more competitive, resilient to climate change, and fully integrated into the European market. A crucial direction is the establishment of a climate-resilient agricultural model, which entails crop diversification, irrigation system development, the use of innovative technologies, and the adoption of regenerative farming practices. Such a model not only increases yields but also reduces vulnerability to climate change while preserving ecosystems and natural resources.

2. Building a strong social foundation in rural areas

The long-term vision also encompasses the strengthening of rural communities. Investments in education,

healthcare, infrastructure, and cultural initiatives will help retain young people in villages, foster new entrepreneurial activities, and improve living standards. This will ensure balanced development of both the agricultural sector and society, positioning Ukraine as a leader in sustainable rural transformation in Europe.

3. Long-term strategic frameworks and policy documents

Several forward-looking policy documents already provide a comprehensive basis for Ukraine's agricultural transformation and EU integration:

The Food Security Strategy of Ukraine Until 2030, developed by the Ministry of Economy, sets a medium-term perspective focused on modernization and resilience. It outlines priorities such as ensuring food access, increasing domestic production, and strengthening resilience to external shocks.

The Ukraine Facility Plan 2024–2027, elaborated jointly with the EU, goes beyond short-term recovery. It charts a roadmap for rural development, agricultural demining, land governance reform, and the green transition, aligning Ukraine with broader European environmental and agricultural agendas.

The Action Plans for the Green Recovery and Transformation of the Ukrainian Food Industries, prepared with UNIDO support, focus on energy-efficient technologies, reducing greenhouse gas emissions, and modernizing the food industry in line with the European Green Deal.

The National Recovery Council's 2022 Ukraine's National Recovery Plan integrates agricultural transformation into the overall national recovery framework. It emphasizes infrastructure modernization, digital tools for resource management, and climate resilience. Complementary strategies, such as the FAO's Ukraine Response Programme 2023 and the Blueprint for the Reconstruction of Ukraine, also contribute to shaping a coherent long-term vision.

4. Stages of agricultural recovery

As highlighted in the Blueprint for an Agricultural Recovery Plan for Ukraine [Center for Strategic and International Studies, 2025], Ukraine's agricultural recovery can be conceptualized in four stages:

Urgent (0–1 years): restoration of production, logistics, and financial support.

Short-term (1–3 years): stabilization of production, expansion of farmer opportunities, and export development.

Medium-term (5 years): strengthening rural communities, small-scale farmers, and the livestock sector.

Long-term (10 years): full harmonization with the CAP, climate adaptation of agriculture, and modernization of food processing industries.

<https://www.csis.org/analysis/blueprint-agricultural-recovery-plan-ukraine>

5. The long-term vision as a transformative horizon

The long-term vision is for Ukraine to become a fully integrated member of the European agricultural community, turning crisis-driven adaptation into a sustainable competitive advantage. Beyond meeting EU standards, Ukraine can emerge as a leader in climate-resilient agriculture — contributing innovative solutions to global food security while preserving its distinctive agricultural heritage.

Complete harmonization with the Common Agricultural Policy establishes Ukraine within the European agricultural framework, with fully operational monitoring systems including Integrated Administration and Control System (IACS), Land Parcel Identification System (LPIS), and an accredited Paying Agency ensuring transparent and effective policy implementation. This institutional maturity enables Ukraine to contribute substantively to EU food security objectives while accessing the full spectrum of CAP support mechanisms. The agricultural sector evolves

into a model of climate resilience, integrating precision farming technologies, renewable energy systems, and biodiversity conservation practices that enhance both productivity and environmental sustainability.

Land previously contaminated or mined through conflict finds new purpose through innovative repurposing strategies, whether for bioenergy production, biodiversity conservation, or ecosystem restoration. These transformations demonstrate Ukraine's capacity to convert adversity into opportunity, establishing new paradigms for post-conflict agricultural recovery. The integration of military veterans' technical expertise in areas such as drone technology and artificial intelligence positions Ukraine at the forefront of agricultural innovation, creating high-value employment while advancing sectoral modernization.

This long-term vision encompasses comprehensive rural revitalization, where agricultural transformation catalyzes broader socioeconomic development. Educational institutions, healthcare systems, and cultural initiatives flourish in rural communities, reversing historical patterns of outmigration and creating vibrant, sustainable rural economies. Young people find compelling opportunities in modernized agriculture and related industries, ensuring generational continuity in rural development.

Ukraine's achievement of this transformative vision establishes a new model for agricultural development that balances productivity with sustainability, innovation with tradition, and national interests with global responsibilities. Through systematic implementation across immediate, medium, and long-term horizons, Ukraine not only recovers from current crises but emerges as an essential contributor to European agricultural resilience and global food security.



05

ONGOING COLLABORATION AND ADOPTION

Sustaining the Science-Policy Dialogue

The rapid evolution of challenges in Ukraine's agricultural sector — ranging from changing battlefield conditions to emergent climate threats and shifting EU requirements — demands sustained engagement across scientific and policy communities. To ensure that the roadmap outlined in this brief continues to inform effective action, ongoing science-policy-practice dialogues must be established at the center of Ukraine's transformation. Achieving this requires robust, institutionalized mechanisms for continuous collaboration and communication, including:

- **Science-Policy Councils:** Establish dedicated, standing councils that convene representatives from Ukrainian research institutions, agricultural universities, government agencies, and EU technical bodies to jointly review progress, interpret new research, and co-develop policy updates. These councils should meet regularly and include representation from local farming communities to ground national policy in practical realities.
- **Scenario Planning Forums:** Drawing on the participatory scenario-planning methods piloted in the Warsaw workshop, convene annual or semi-annual forums where stakeholders collaboratively assess emerging challenges, stress-test policies against plausible futures, and identify necessary course corrections.
- **Embedded Technical Liaisons:** Place trained technical liaisons or “science fellows” within key ministries (e.g. Ministry of Agrarian Policy) to serve as ongoing bridges between researchers and policymakers, translating evidence into actionable recommendations and ensuring that policy implementation adapts to new knowledge.
- **Regional Science Hubs:** Establish regional centers of excellence that connect universities, research institutes, and extension services with local governments and farming communities. These hubs would generate applied research, pilot climate-smart technologies, and serve as anchors for knowledge exchange between Ukraine and EU partners.
- **Feedback and Monitoring Platforms:** Develop digital platforms for real-time sharing of agricultural performance data, policy outcomes, and stakeholder feedback, ensuring that decisions remain data-driven and that learning is continuous.

Spreading Success: Knowledge Networks that Work

Building Ukraine's agricultural resilience and aligning with EU standards will require rapid and inclusive dissemination of best practices — both within Ukraine and across the region. To achieve this, it is essential to utilize and expand knowledge networks that facilitate the spread of innovation and lessons learned. Such venues may include:

- **Communities of Practice:** Support collaborative networks of farmers, extension advisors, researchers, and policymakers — modeled on EU “Operational Groups” — to pilot, evaluate, and distribute innovative solutions, whether related to climate-resilient crops or new financing models.
- **Open Knowledge Repositories:** Establish freely accessible repositories and online portals where guidance documents, research findings, and case studies are documented in Ukrainian, English, and other relevant languages. These platforms should leverage existing EU frameworks (such as the European Innovation Partnership for Agricultural Productivity and Sustainability, EIP-AGRI) to integrate Ukrainian adaptation experiences into broader European learning loops.
- **Peer Exchange and Mobility Programs:** Promote regular exchanges and learning visits with EU member states, especially those with recent or ongoing CAP adaptation experience (e.g., Poland), to foster practical peer learning and to build lasting institutional relationships.
- **Annual Knowledge Fairs and Innovation Challenges:** Institutionalize events where practitioners, innovators, and policymakers can present successful projects, share failures and lessons learned, and catalyze new collaborations. Such forums raise the profile of Ukrainian expertise and create opportunities for scaling

proven interventions.

By embedding these mechanisms and networks into Ukraine's agricultural transformation, this roadmap not only ensures adaptive, evidence-informed policymaking, but also positions Ukraine as an active contributor to the broader European — and global — community of practice on food system resilience.

Bridging Agricultural and Climate Ambitions: The Strategic Roles of DG AGRI and DG CLIMA

The European Commission's Directorate-General for Agriculture and Rural Development (DG AGRI) and Directorate-General for Climate Action (DG CLIMA) play pivotal and complementary roles in shaping a sustainable, resilient future for the EU and its partner countries.

DG AGRI: Advancing Sustainable Agriculture and Rural Vitality

DG AGRI develops, implements, monitors, and evaluates the Common Agricultural Policy (CAP), to meet economic, environmental, and social objectives, including ensuring food security and responding to climate challenges. Through policies that promote robust agricultural sectors, environmental stewardship, and fair living standards for rural communities, DG AGRI serves as a cornerstone for EU cohesion and modern, market-oriented farming (Wigier 2019).

DG CLIMA: Leading Europe's Climate Transformation

DG CLIMA's central mission is to develop and implement policies that will reduce greenhouse gas emissions, enhance climate resilience, and facilitate a just transition of the EU to climate-neutrality by 2050. As such, it manages the EU's Emissions Trading System (ETS). DG CLIMA is at the forefront of integrating climate considerations into all EU policy domains, promoting innovative decarbonization technologies, and representing Europe in international climate negotiations. The directorate manages key instruments such as the EU Emissions Trading System and supports member states in reaching their national climate targets, while ensuring climate action is a pillar of the European Green Deal and industrial strategy (Dudek 2018; Orenstein 2023; Zegar 2024).

Synergies for Ukraine and Beyond

For Ukraine and other aspiring EU partners, effective collaboration with both DG AGRI and DG CLIMA is essential. Joint engagement ensures agricultural transformation aligns with climate neutrality targets, leverages the CAP for recovery and resilience, and positions national reforms within broader European ambitions for sustainability and prosperity. By harnessing the strengths of both DGs — policy innovation, stakeholder engagement, and international partnership — countries can drive science-based, climate-resilient agriculture and rural development that meets 21st-century challenges.



Appendix 1

**Lessons learned
from Poland's CAP
Implementation Experience**

Introduction

When considering various aspects of integrating the Ukrainian agricultural sector with EU structures, it is worth posing a brief but crucial question: can the accession experiences of a member state such as Poland provide significant and useful lessons for a country applying for EU membership? On one hand, the agriculture and institutional system of a given member state may have strengths and weaknesses as well as its own specificities. At the same time, the integration process itself involves implementation under unique circumstances. Poland's path to the EU, which began with the fall of the communist regime and the commencement of systemic transformation, lasted fifteen years. Despite the temporarily adverse social effects of market liberalization and economic reforms (so-called shock therapy) (Sachs 1995), maintaining the pro-European direction of change occurred under relatively stable and favorable conditions of international cooperation and exchange. Ukraine's path to the EU is entirely different and turbulent. On one level, the structure of farming in Ukraine exceeds all precedent for the EU. In comparison with Poland and other member states, farms in Ukraine are extensively consolidated, following trends more familiar to American farmers than European farmers in production. Beyond that, though, the process of economic and political reforms aimed at EU integration has been characterized by frequent changes in trajectory caused by Russia's political and military opposition (Raik 2024). Today, Ukraine, whilst fighting for its own freedom and seeking EU membership, simultaneously ensures the EU's stability and security.

Despite the dramatic and unprecedented circumstances caused by Russian military aggression, Ukraine is making systematic progress in the EU integration process, receiving support from EU member states and the U.S. (Orenstein 2023). Alongside humanitarian, financial, and military assistance, institutional support and the sharing of experiences and knowledge in many areas within the EU's competence and functioning are essential for accelerating Ukraine's inclusion in the European Community. The relative permanence and uniformity of accession procedures and Community policy mechanisms, such as the Common Agricultural Policy (CAP), as well as historical, geographical, social, cultural, and political similarities connecting Ukraine and Poland, allow for the formulation of conclusions and recommendations arising from experiences of functioning within the EU. The following sections of this study present experiences relating to the inclusion of the Polish agricultural sector in CAP mechanisms. The study analyses main economic effects for the Polish agricultural sector and highlights the significance of building and strengthening the system of institutions related to agriculture, which constitutes a key element in implementing the CAP. The text concludes with a summary considering challenges for Polish and Ukrainian agriculture arising from the next proposals for CAP post-2027.

Two Decades of EU CAP in Poland – Insights from the Agricultural Sector

2024 marks two decades since Poland joined the European Union. The period of functioning within the common market (Single European Market) and being covered by Community policies brought numerous economic, social, and institutional effects in many areas. Indisputably, one such sector that benefited most relatively from EU accession is agriculture and the agri-food economy. The EU CAP created, above all, stable conditions for the functioning and development of domestic farms. This was possible thanks to directing significant financial streams to farmers within both structural instruments of agricultural policy – such as subsidies for enlarging and modernizing agricultural production potential (for purchasing agricultural land, agricultural machinery and equipment, constructing and modernizing farm buildings) – and through direct payments (Table 5). As a result, a segment of economically strong and competitive farms was formed, responsible for producing most of the global agricultural output and ensuring the country's food security. CAP financial resources, apart from strengthening commercial farms, which in Poland constitute less than one-third of all units, contributed to improving the income situation of the entire population of farmers (Zegar 2024). In the years 2004-2022, agricultural incomes increased more than two-and-a-half-fold, thanks to which the income disparity between farmers and other socio-professional categories clearly decreased (in relation to average wages in the economy).

Table 5. The scale and share of financial transfers under the EU Common Agricultural Policy for Poland in the years 2004-2025

Specification	Transfers (in EUR mln)	Percentage (%)
Common Agricultural Policy (total)	85274	100
Direct payments	54970	64,5
Market interventions	1807	2,1
RDP* up to 2013	16050	18,8
RDP 2014-2020	10340	12,1
RDP 2021-2027	643	0,8
Other CAP transfers	183	0,2
European Maritime, Fisheries and Aquaculture Fund	1281	1,5

*Rural Development Programme.

Source: own elaboration based on Ministry of Finance data,

<https://www.gov.pl/web/finanse/transfery-polska-ue-unia-europejska>

Participation in CAP mechanisms for Polish farmers was not associated with deriving exclusively financial benefits. A range of instruments of this policy concerned activities aimed at increasing agricultural knowledge and qualifications as well as improving professional skills (Dudek 2018). These instruments concerned primarily training, workshops, and utilizing specialist advisory services (including individual advice or the possibility of observing practices in demonstration farms). Simultaneously, the development of various professional competences of farmers, for example in farm management, using digital solutions, introducing modern agricultural production technologies, or practices favoring environmental and climate protection, occurred indirectly as a requirement for using parts of CAP solutions such as direct payments (meeting Good Agricultural and Environmental Conditions - GAEC standards, obtaining additional payments for implementing pro-environmental and pro-climate practices - eco-schemes) or as a condition or factor favoring receiving co-financing for implementing investments in farms (e.g., the necessity of preparing a business plan).

Development of Polish Agriculture and Macroeconomic Changes – the Role of Food Industry

The stabilization and improvement of the income situation of Polish farmers and gaining broad possibilities for agricultural business development resulted from the impact of the EU CAP. Nevertheless, changes in its environment were equally important for favorable transformations of the agricultural production sector, that is, in the overall economy and in individual segments of the agri-food chain, particularly in the food industry. The period from the beginning of EU accession (2004) to 2024 was a time of dynamic economic growth, falling unemployment, increased food consumption, and maintaining relatively high dynamics of real population incomes. These processes favored the development of a large part of agricultural producers. Simultaneously, variable (and often relatively unfavorable for farmers) conditions of production profitability in the market were accompanied by the liquidation of farms and significant outflow of labor from agriculture. Usually, whilst maintaining high costs (especially labor), small agricultural land resources, and small value of agricultural capital engaged in many farms, regardless of the possibility of using subsidies within agricultural

policy, insufficient scale of agricultural production meeting market recipients' expectations was not achieved.

Possibilities for developing high-value-added agricultural production or entering market niches (e.g., organic food, high-quality products) were limited. In this situation, the non-agricultural labor market usually offered the farming population more attractive earnings and relatively better working conditions, which occurred in a situation of faster growth of labor costs and means of agricultural production than the dynamics of agricultural product sales price increases (Ziętara and Mirkowska 2023). During the period of functioning within the EU, the number of farms decreased by over 665,000 (from 1,957 to 1,292 thousand) (Poland Central Statistical Office) and the percentage of people working in agriculture fell from 17.9 to 6.9% (European System of Accounts). The decline primarily concerned the group of small units with low production potential, in which agricultural production constituted a side or marginal activity or was not conducted at all.

Thanks to inclusion in the common European market, Polish farmers and food companies gained access to an enormous sales market of approximately 450 million consumers, which, together with growing demand from the domestic market, influenced sustained demand for agricultural goods produced and provided a developmental stimulus for farms. This process would not have been possible without structural transformations and the development of food enterprises in Poland. Restructuring, creation, and consolidation of food companies was largely implemented through foreign direct investment and public investment support from EU funds, especially in the initial years of EU membership (these allowed, among other things, the implementation of various quality management systems). As a result, a strong segment of the Polish economy was formed, comprising approximately 2,500 companies and employing 330,000 workers, oriented towards export (mainly the internal EU market) (Szczepaniak 2023). Following inclusion in the SEM, the dynamically developing Polish agri-food sector benefited from trade creation and trade diversion effects. The inflow of foreign capital and public funds for investment enabled modernization of production and organizational processes, adaptation to EU quality standards whilst maintaining relatively lower labor costs. This last factor determined competitiveness in relation to entities from other countries. Consequently, between 2004 and 2024, the value of total exports increased from 5.2 to 53.5 billion euros, i.e., more than ten-fold. During the same period, imports of agri-food goods increased eight-fold, from 4.4 to 35.6 billion euros. This means that Poland recorded annually increasing positive trade balances in agri-food products for almost two decades, which increased from nearly 1 billion in 2004 to almost 18 billion in 2024.

Building the Institutional System – A Key Element of Functioning within the EU CAP

The inclusion of Polish agriculture in CAP mechanisms and the SEM required undertaking a series of actions on the institutional system side, starting from adapting legal regulations (e.g., adapting phytosanitary, veterinary, animal welfare, labor law, and land trade regulations) through building and reforming institutions comprising agricultural administration (e.g., paying agency, building registers of farms, animals, agricultural land – IACS, implementing the EU agricultural accounting system or reorganizing the agricultural market information system), including appropriate preparation of civil service employees, to implementing EU standards for agricultural policy and rural development. The shaping and strengthening of the institutional system occurred gradually and was initiated long before formal accession. The success of this process resulted significantly from political consensus regarding the pro-EU direction of systemic and economic reforms, including transformations of the agricultural sector.

In the case of the Polish agricultural sector, the institutional integration process with the EU can be divided into several stages, which after EU accession were largely convergent with its budgetary and strategic perspectives. These were phases that can be defined as: pre-integration phase (1989-2003), first years of EU membership and institutional system development (from 2004), institutional consolidation (from the beginning of the 2007-2013 financial perspective to 2022), and reforms and adaptation (from 2023). Each of these phases of adaptation to the CAP system had its specific character and associated problems and challenges.

The process of Poland's integration with the EU was initiated at the turn of the 1980s and 1990s. The transforming economy from centrally planned to market-based was characterized by a seriously underdeveloped agricultural sector, which lacked the institutional framework needed to conduct modern agricultural policy. Financing of agriculture and rural development was extremely limited. Simultaneously, many farmers were skeptical

about EU integration, fearing loss of sales markets and the necessity of liquidating production due to lack of competitive capacity in relation to foreign producers. Poland's accession negotiations with the EU, falling in the years 1997-2002 and covering thirty areas, proved that agriculture was one of the most difficult and complex chapters. Management of agreements on Poland's EU accession conditions, not only in the agricultural sector, was entrusted to the Office of the Committee for European Integration (UKIE). This institution coordinated the work of all ministries and bodies involved in EU accession work, supporting the process of adapting regulations to SEM standards and managing financial assistance designated for this purpose. The framework for institutional activities was determined by the Polish National Integration Strategy developed in 1997 and the annually updated National Programme for Preparation for Membership. For CAP implementation, building essential institutions that became the foundation of agricultural sector integration was crucial. The most important of these was the Agency for Restructuring and Modernisation of Agriculture (ARiMR) – a paying agency responsible for financial flows between the EU and Poland in agriculture and rural development.

Simultaneously, the Polish government invested in expanding administrative capacity, preparing personnel to manage and implement the CAP. Participation in EU pre-accession programs such as PHARE (Poland–Hungary Assistance for Restructuring their Economies, 1990–2006) and SAPARD (Special Accession Programme for Agriculture and Rural Development) provided not only tangible financial benefits but also critical institutional experience—ranging from aligning national law with EU standards to reforming agricultural administration, developing advisory services, and strengthening the agri-food sector.

The effectiveness of the functioning of the built CAP management system can be illustrated by citing data on the allocation of financial resources for agricultural and rural development in Poland. In the period from 2004 to 2025, Poland paid out just under 55 billion euros for implementing direct payments. This support, constituting over two-thirds of CAP financial resources, reached approximately 1.5 to 1.2 million farms (Table 1). Regarding the second pillar of the CAP, each EU programming period, regardless of similar objectives and instruments, involved different possibilities and challenges concerning efficient and rational spending of enormous amounts of financial resources (almost one-third of CAP resources for Poland, Table 1).

The main objectives of agricultural and rural development policy implemented in Poland resulted from strategies and policy instruments recorded in EU law. Objectives and tools were then adapted to national needs and detailed in successive strategies and programs for agricultural and rural development. Over the analyzed period of more than two decades of national agriculture functioning within the CAP, the challenge was resolving the dilemma between agricultural policy priorities and choosing between objectives relating to economic competitiveness and target values in environmental protection and social cohesion (quality of life of rural inhabitants) (Wigier 2019). Analysis of the method of allocating CAP development funds (Pillar II) from the beginning of Poland's EU accession revealed an evolution of priorities in financial support distribution (Chmieliński 2024). Initially, the accent was placed mainly on investments in physical capital of farms and food industry enterprises. Over time, the stream of resources allocated to social objectives (construction and modernization of rural technical and social infrastructure) increased. From 2014, in accordance with the trend observed at the entire EU level, the importance of financing environmental and climate objectives noticeably increased, which from 2023 constitute approximately one-third of all CAP resources in Poland. In the current EU financial perspective, the CAP Strategic Plan is being implemented, which covers both direct payments and interventions directed at rural development.

The new approach to the CAP, known as the New Delivery Model, gives member states greater flexibility in designing and implementing agricultural policies, allowing for closer alignment with national needs. At the same time, it introduces new challenges, including a stronger focus on results rather than simple compliance, and the need to deliver on ambitious climate and environmental goals. Regardless of the period, the challenge for national agricultural administration was the overlapping in time of successive EU CAP strategies and, for this reason, the necessity of simultaneously implementing different agricultural policies. This required increasingly broad implementation of digital systems to serve beneficiaries, control financial expenditure, and for reporting and monitoring.

Currently, Poland functions within a complex CAP governance structure that combines local, regional, national, and EU levels. This system ensures effective policy implementation considering national needs and conditions. The institutional structure developed during the membership period proved to be sufficiently efficient and flexible in implementing CAP objectives and instruments.

Common Agricultural Policy (CAP) Governance Structure in Poland

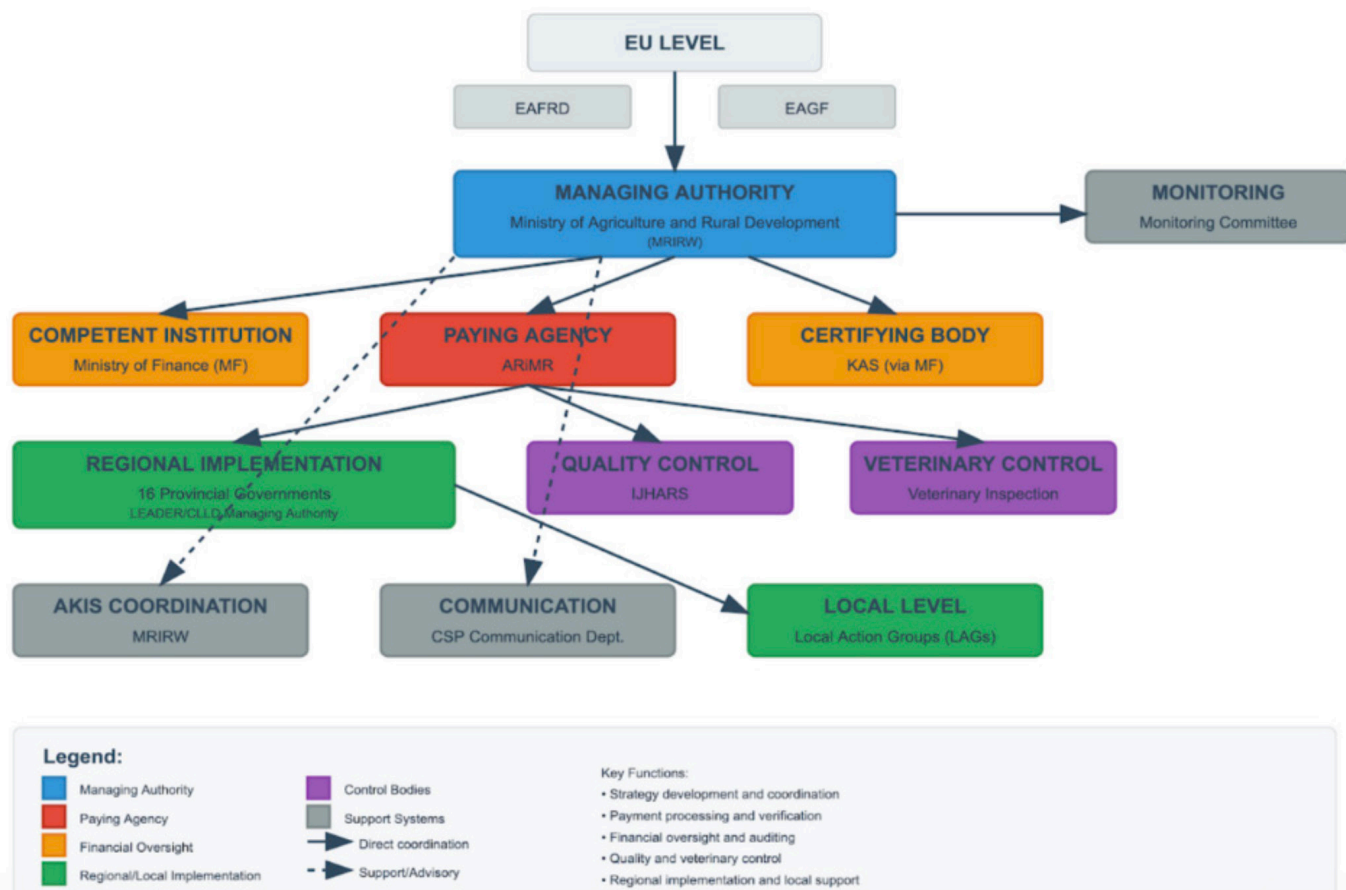


Figure 2. EU CAP governance structure in Poland (Source: own elaboration based on CAP Strategic Plan for 2023-2027, MRiRW, Warsaw).

Summary: CAP Post-2027 and Challenges Facing Polish and Ukrainian Agriculture

The question of what shape the future CAP will take, in which Polish agriculture functions and to which Ukraine aspires and will negotiate its participation, remains open. The inclusion of the Ukrainian agricultural sector in the EU will be both an opportunity and a challenge. On one hand, this will significantly increase the production potential and size of the European agri-food sector on a global scale. On the other hand, Ukraine's inclusion will require current member states to both reimagine the internal market for agriculture economically as trade flows change, and to reimagine policy to support current member states' functioning farms to better withstand competition from large-scale commercial agricultural enterprises from Ukraine. Ultimately, these changes will necessitate thorough CAP reform at the entire EU level. The direction of these changes is partially reflected in proposals and work on the shape of CAP post-2027 (Strategic Dialogue on the Future on EU Agriculture, 2024). Its transformation will move towards simpler and more targeted support for the sector of small and medium-sized farms active in the market, undoubtedly at the expense of instruments aimed at rural development (European Commission, 2025). Future CAP tools are to favor relatively greater generation of positive external effects (environmental-climate) and production of healthy and safe food for consumers, which is to be achieved through broader introduction of appropriate incentives at the expense of compliance instruments. The implementation of these intentions is to be guaranteed by a system of implementation, control, and monitoring based on digital solutions.

Regardless of future CAP reforms, based on Polish institutional experiences, recommendations can be formulated that may be useful for Ukraine. Firstly, it is important to have a dedicated institution coordinating the management of the integration process, as well as an efficient paying agency, supported by technical assistance programs, especially at the early stage of accession. Secondly, there is a need for significant investment in specialized personnel and administrative capacities, as people are crucial in both negotiations and CAP implementation. From the farmers' perspective, it is important to develop comprehensive information and training policies. Agricultural



advisory systems played a very important role, particularly in the initial period of accession and applying for support for farm development. The inclusion of EU funds in local development programs and village renewal projects also proved significant, so that structural transformations of the agricultural sector were accompanied by activation and improvement of the quality of life of rural communities. Poland's path from a post-communist agricultural system to successful functioning of the agricultural sector within EU member structures shows that with appropriate institutional frameworks, proper preparation, and lasting commitment to the integration process, success can be achieved. The key is building appropriate institutions, investing in human capital creating agricultural administration, and maintaining flexibility in adapting to changing EU objectives.

References

- Broyaka, Antonina. 2025. "Ukraine and the EU – Agricultural Trade Partners or Competitors?" Presentation. Department of Agricultural Economics, Kansas State University. June 24, 2025. https://www.agmanager.info/sites/default/files/pdf/Broyaka_Ukraine-EU_06-24-25.pdf.
- Center for Strategic and International Studies. 2025. "Blueprint for an Agricultural Recovery Plan for Ukraine." Washington, DC: CSIS. <https://www.csis.org/analysis/blueprint-agricultural-recovery-plan-ukraine>.
- Chmieliński, P., and W. Czubak. 2024. "Ewolucja oddziaływania WPR na przemiany wsi i rolnictwa w Polsce." In *Polska wieś i polskie rolnictwo. 20 lat w UE*, edited by P. Chmieliński and G. Gorzelak, 24-25. Warszawa: IRWiR PAN.
- Dudek, M. 2018. "Instrumenty Wspólnej Polityki Rolnej Unii Europejskiej a wzmacnianie kompetencji zawodowych osób pracujących w polskim rolnictwie [Common Agricultural Policy of European Union Instruments and Enhancing Occupational Skills of Persons Working in Agriculture]." *Marketing i Zarządzanie [Marketing and Management]* 1, no. 51: 41-49. <https://doi.org/10.18276/miz.2018.51-04>.
- Eriksen, Siri, E. Lisa F. Schipper, Morgan Scoville-Simonds, Katharine Vincent, Hans Nicolai Adam, Nick Brooks, Brian Harding, Dil Khatri, Lutgart Lenaerts, Diana Liverman, Megan Mills-Novoa, Marianne Mosberg, Synne Movik, Benard Muok, Andrea Nightingale, Hemant Ojha, Linda Sygna, Marcus Taylor, Coleen Vogel, and Jennifer Joy West. 2021. "Adaptation Interventions and Their Effect on Vulnerability in Developing Countries: Help, Hindrance or Irrelevance?" *World Development* 141: 105383. doi:10.1016/j.worlddev.2020.105383.
- European Commission. 2021. *Evaluation Support Study on the Impact of the CAP on Territorial Development of Rural Areas: Socioeconomic Aspects*. Brussels: European Commission, DG Agriculture and Rural Development.
- European Commission. 2023a. "CAP Strategic Plans." Common Agricultural Policy. European Commission. https://agriculture.ec.europa.eu/cap-my-country/cap-strategic-plans_en.
- European Commission. 2023b. "Conditionality." Common Agricultural Policy. European Commission. https://agriculture.ec.europa.eu/common-agricultural-policy/income-support/conditionality_en.
- European Commission. 2023c. "CAP at a Glance." Common Agricultural Policy. European Commission. https://agriculture.ec.europa.eu/common-agricultural-policy/cap-overview/cap-glance_en.
- European Commission. 2025. *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A Vision for Agriculture and Food Shaping together an attractive farming and agri-food sector for future generations*. Brussels, 19.2.2025. COM(2025) 75 final.
- European Court of Auditors. 2021. *2021 EU Audit in Brief: Annual Reports on the EU Budget and European Development Fund*. Luxembourg: Publications Office of the European Union. <https://op.europa.eu/webpub/eca/audit-in-brief-2021/en/index.html>.
- Eurostat. (2025). *Employment by A10 industry breakdowns: Agriculture, forestry, and fishing (nama_10_pe)**. European Commission. Retrieved August 4, 2025, from https://ec.europa.eu/eurostat/databrowser/view/nama_10_pe/default/table?lang=en&category=na10.nama10.nama_10_e_p
- FAO (Food and Agriculture Organization of the United Nations). 2021. *The State of the World's Land and Water Resources for Food and Agriculture: Systems at Breaking Point (SOLAW 2021)*. Rome: FAO. Document code: CB7654EN. <https://www.fao.org/land-water/solaw2021/en/>.
- FAO (Food and Agriculture Organization of the United Nations). 2022. *FAO Strategy on Climate Change 2022–2031*. Rome: FAO. Document code: CC2274EN. <https://www.fao.org/family-farming/detail/en/c/1618544/>.

FAO (Food and Agriculture Organization of the United Nations). 2023. Ukraine: Response Programme, January–December 2023 – Restoring Food Systems and Protecting Food Security in Ukraine. Rome: FAO. <https://doi.org/10.4060/cc4655en>.

Feola, Giuseppe. 2015. "Societal Transformation in Response to Global Environmental Change: A Review of Emerging Concepts." *Ambio* 44, no. 5: 376-390. doi.org/10.1007/s13280-014-0582-z.

Kovalenko, V., Sheludko, S., Aranchyi, V., Chumak, V., & Doroshenko, O. (2024). Export of agricultural products as a determinant of currency security of Ukrainian economy. *Agricultural and Resource Economics: International Scientific E-Journal*, 10(3), 56-79.

Matthews, Alan. 2022. "Can the New CAP Help EU Agriculture to Meet the Targets in the European Green Deal?" *ECA Journal*. Luxembourg: European Court of Auditors. <https://medium.com/ecajournal/can-the-new-cap-help-eu-agriculture-to-meet-the-targets-in-the-european-green-deal-a2e36d70af4d>.

Moldavan, Lubov, Olena Pimenowa, Mirosław Wasilewski, and Natalia Wasilewska. 2023. "Sustainable Development of Agriculture of Ukraine in the Context of Climate Change." *Sustainability* 15, no. 13: 10517. <https://doi.org/10.3390/su151310517>.

OECD. 2021. *Agricultural Policy Monitoring and Evaluation 2021: Addressing the Challenges Facing Food Systems*. Paris: OECD Publishing. <https://doi.org/10.1787/2d810e01-en>.

Orenstein, M. A. 2023. "The European Union's transformation after Russia's attack on Ukraine." *Journal of European Integration* 45, no. 3: 333-342. <https://doi.org/10.1080/07036337.2023.2183393>.

Raik, K., S. Blockmans, A. Osypchuk, and A. Suslov. 2024. "EU policy towards Ukraine: Entering geopolitical competition over European order." *The International Spectator* 59, no. 1: 39-58. <https://doi.org/10.1080/03932729.2023.2296576>.

Sachs, J. D. 1995. "Shock therapy in Poland: Perspectives of five years." *The Tanner Lectures on Human Values*. University of Utah. <https://academiccommons.columbia.edu/doi/10.7916/D8HM5FNP/download>.

Semenova, Inna, and Mariia Slizhe. 2020. "Synoptic Conditions of Droughts and Dry Winds in the Black Sea Steppe Province Under Recent Decades." *Frontiers in Earth Science* 8: 69. <https://doi.org/10.3389/feart.2020.00069>.

Semenova, Inna, and Sergio M. Vicente-Serrano. 2024. "Long-term Variability and Trends of Meteorological Droughts in Ukraine." *International Journal of Climatology* 44, no. 8: 2751-2771. <https://doi.org/10.1002/joc.8416>.
Strategic Dialogue on the Future of EU Agriculture: A Shared Prospect for Farming and Food in Europe. 2024.

Szczepaniak, I., and J. Drożdż. 2023. "Spatial distribution and regional concentration of food industry enterprises in Poland." *Annals AAAE* 25, no. 4: 406-421. <https://doi.org/10.5604/01.3001.0053.9738>.

Wigier, M. 2019. *Alokacyjne i dystrybucyjne dylematy polityki rolnej na przykładzie polskiego sektora rolno-spożywczego w okresie 1989-2018*. *Studia i Monografie* 174. Warszawa: IERiGŻ-PIB.

World Bank. 2022. *Ukraine: Building Climate Resilience in Agriculture and Forestry*. Washington, DC: World Bank Group. <https://www.worldbank.org/en/news/press-release/2022/02/09/new-world-bank-study-analyzes-climate-change-impact-in-ukraine>.

Zegar, J. S. 2024. "The Transformation of Polish Agriculture and Rural Areas Since EU Accession." *Village and Agriculture* 205, no. 4: 141-157. <https://doi.org/10.53098/wir.2024.4.205/06>.

Ziętara, W., and Z. Mirkowska. 2023. "Concentration of dairy cow breeding and competitiveness of Polish farms specialized in milk production." *Annals PAAAE* 25, no. 2: 168-181. <https://doi.org/10.5604/01.3001.0016.2867>.