



**Higher School of Social and Economic
in Przeworsk**

ENTREPRENEURIAL DIMENSIONS OF MANAGEMENT AND INNOVATION: STRATEGIC, EDUCATIONAL AND SOCIO-ECONOMIC PERSPECTIVES

scientific monograph



Przeworsk, 2025

ENTREPRENEURIAL DIMENSIONS OF MANAGEMENT AND INNOVATION: STRATEGIC, EDUCATIONAL AND SOCIO-ECONOMIC PERSPECTIVES: SCIENTIFIC MONOGRAPH

Higher School of Social and Economic. Przeworsk: WSSG, 2025.

Scientific editor:

Piotr Jarosh, Doctor of Economics, Assistant professor, rector of the Higher School of Social and Economic in Przeworsk;

Larysa Cherchyk, Doctor of Economics, Professor Department of Management of Lesya Ukrainka Volyn National University

Włoch Waldemar, PhD, dean of the Higher School of Social and Economic in Przeworsk

Authors:

Bogumiła Kopeć, Bogusław Piotrowski, Halina Kot, Grażyna Kącicka, Jacek Cymerman, Larysa Cherchyk, Liudmyla Shanaieva-Tsymbal, Natalia Naumenko, Nataliia Khomiuk, Nataliia Pavlikha, Oleksii Vorsovskiy, Olga Vytvytska, Piotr Jarosz, Piotr Maziarz, Sergiy Volodin, Serhii Petrukha, Waldemar Włoch

Reviewers:

Maria Krelowska-Kulas, Doctor of Economics, professor of the Higher School of Social and Economic in Przeworsk;

Bogusław Slusarczyk, Doctor of Economics, professor of the Higher School of Social and Economic in Przeworsk;

Marceli Ryszard Gęśła, OFM Higher School of Social and Economic in Przeworsk

Vitaliy Krupin, Doctor of Economics, Assistant professor, Institute of Rural and Agricultural Development, Polish Academy of Sciences;

Natalia Vavdiyuk, Doctor of Economics, Assistant professor, Head of the Department of Management, Lutsk National Technical University

Publishers:

Higher School of Social and Economic in Przeworsk

Gimnazjalna, 35, 37-200, Przeworsk, Poland

tel.: +48 721 207 300, + 48 16 733 41 36

e-mail: wssg@vp.pl

ISBN 978-83-966547-7-9

© Copyright by Higher School of Social and Economic in Przeworsk, 2025

© Arrangement of the text of the monograph *Jarosz Piotr, Cherchyk Larysa, Włoch Waldemar*

INTRODUCTION (<i>dr hab. inż. Prof. Ucz. Jarosz Piotr</i>)	5
UNIVERSITY AS AN ENTREPRENEURIAL ORGANIZATION: STRATEGY AND MANAGERIAL TRAINING	7
Situational project teams (<i>Larysa Cherchyk, Doctor of Economics, Professor</i>)	8
University as an entrepreneurial organization: strategic and educational dimensions of manager training (<i>dr inż. Waldemar Włoch</i>)	26
Organisation of activities and quality management in higher education institutions (<i>Oleksii Vorsovskyi, Doctor of Economics, Assystent</i>)	40
SOCIO-ECONOMIC CHALLENGES AND LABOR MARKET INCLUSIVITY	48
Labor market inclusivity in the context of war and post-war recovery in Ukraine (<i>Nataliia Pavlikha, Doctor of Economics, Professor</i>)	49
Bezrobocie a bezpieczeństwo obywateli (<i>dr Bogumiła Kopeć</i>)	61
Techniki socjologiczne manipulowania i wywierania wpływu na inne osoby jako elementy wykorzystywane w cyberprzestępczości (<i>dr prof. ucz. Piotrowski Bogusław</i>)	70
INNOVATIVE POLICY AND GREEN TRANSFORMATION	87
Digital age “fast mode”: priorities of innovative regional policy and green transformation (<i>Natalia Naumenko, PHD in economics, associate professor</i>)	88
Innovative approaches to agricultural land restoration management under public–private partnership conditions (<i>Nataliia Khomiuk, Doctor of Economics</i>)	108

ANTI-CRISIS AND INNOVATION MANAGEMENT	130
Anti-crisis management in the system of classic management approaches: diagnostics, strategy, stabilization (<i>dr hab. inż. prof. ucz. Jarosz Piotr, dr Grażyna Kącicka</i>)	131
Innovation management: theoretical and practical approaches	142
1. Scientific and methodological approaches to innovative management tools (<i>Olga Vytvytska d.sc. in Economics, Professor, Liudmyla Shanaieva-Tsymbal Candidate of Public Administration, Associate Professor, Associate Professor of the Department of English Philology</i>)	142
2. Science park as a management system for the transfer of innovation sergiy volodin (d.sc. in economics, director, institute of innovative bioeconomy, (<i>Sergiy Volodin D.Sc. in Economics, Director, Institute of Innovative Bioeconomy, Serhii Petrukha, Ph. D. (Economics), Associate Professor, Associate Professor of the Department of Management in Construction</i>)	160
The role of logistical innovation in improving the efficiency of business processes (<i>dr inż. Piotr Maziarz, dr inż. Jacek Cymerman, mgr Halina Kot</i>)	178

INNOVATIVE APPROACHES TO AGRICULTURAL LAND RESTORATION MANAGEMENT UNDER PUBLIC–PRIVATE PARTNERSHIP CONDITIONS

Introduction

In recent years, severe degradation of agricultural land has been witnessed due to two compounding factors: armed conflict and climate change. In Ukraine, the ongoing war has caused widespread destruction of fields, soil contamination by munitions, and the creation of the world's most extensive minefield, affecting an estimated 30 % of the country's territory¹²⁰. Explosive remnants of war and deliberate scorched-earth tactics have polluted soils with metals and toxins, posing grave threats to food security¹²¹. For instance, assessments indicate Ukraine may need nearly 30 years to restore soil fertility lost to war damage¹²². At the same time, climate stress – including prolonged droughts, extreme heat, and erratic rainfall – has exacerbated land degradation globally, with over 20 % of cultivated areas experiencing declining productivity¹²³. These challenges have converged in Ukraine's agricultural sector, where fertile chernozem soils face wartime devastation and intensifying drought and erosion risks. Addressing such a multifaceted crisis requires innovative management approaches that leverage public-private partnerships (PPP). Traditional government-led land reclamation programs are often under-resourced and slow, while private sector efforts alone may ignore broader social and ecological goals. A PPP approach can synergistically combine public authority and funding with private innovation and efficiency¹²⁴.

Nataliia Khomiuk, dr. econ. sci.

Lesya Ukrainka Volyn National University

¹²⁰ State Emergency Service of Ukraine. (n.d.). *Contacts*. Ministry of Internal Affairs of Ukraine. Retrieved July 6, 2025, from <https://mvs.gov.ua/en/contacts/state-emergency-service>

¹²¹ Tsymbaliuk, I. O., Khomiuk, N. L., Kozliuk, V., Bilous, O., & Voinov, I. (2025). *Model of comprehensive land restoration as a tool for strategic management in the public and private sectors*. In P. Jarosz & L. Cherchyk (Eds.), *Managerial Practices and Challenges in Various Economic Sectors: Scientific Monograph* (pp. 231–246). Przeworsk, Poland: WSSG.

¹²² Bondariev, V. (2024, October 19). *Ukraine will need almost 30 years to restore soil fertility: War damage assessment*. *Suspilne*. <https://suspilne.media/vinnytsia/857385-dla-vidnovlennia-roducosti-gruntiv-ukraini-znadobitsja-majze-30-rokiv-ocinka-zbitkiv-vid-vijni>

¹²³ Down to Earth. (2019, September 3). UNCCD COP 14: Public-private partnership can help restore degraded lands. <https://www.downtoearth.org.in/climate-change/unccd-cop-14-public-private-partnership-can-help-restore-degraded-lands--66646#:~:text=Globally%2C%203,to%20help%20tackle%20environmental%20problems>

¹²⁴ Lopes, C. L., Cozendey, G., & Chiavari, J. (2024, December 3). *Restoring Brazil's public lands: Exploring public-private partnership options*. *Climate Policy Initiative*. <https://www.climatepolicyinitiative.org/publication/restoring-brazils-public-lands-exploring-public-private-partnership-options/>

This chapter explores how PPP mechanisms can be applied to agricultural land restoration in the aftermath of war and under climate stress. It draws on theoretical frameworks of sustainable land management and international best practices. The chapter integrates contemporary sources – including FAO and UNEP reports, European Commission strategies, and Ukrainian governmental plans – to ensure relevance to ongoing initiatives. Key sections cover the theoretical background of PPP in land management, global experiences in PPP-based land restoration, innovative models and tools, and a focused discussion on Ukraine’s case, including pilot projects and policy recommendations. By bridging scientific approaches with practical examples, the chapter aims to demonstrate that public-private collaboration can accelerate the recovery of war-torn farmlands and build climate resilience, turning a crisis into an opportunity for sustainable development.

Theoretical background: PPPs and sustainable land management

Public-private partnerships are cooperative arrangements between government agencies and private-sector entities to provide public goods or services. Inland restoration, PPPs offer a framework to share risks, mobilize investment, and align incentives between the public interest in environmental rehabilitation and the private interest in profitable land use¹²⁵. Sustainable land management (SLM) provides the theoretical foundation, emphasizing that land resources must be restored and used to balance economic, environmental, and social objectives¹²⁶. Land restoration is not only an ecological imperative but “a managerial challenge” requiring coordinated action by public and private stakeholders.

In particular, a monograph on the diversification of rural development under decentralisation emphasised the importance of multi-sectoral engagement and local stakeholder involvement in addressing rural land use challenges¹²⁷. Similarly, Pavlikha N. and Khomiuk N. examined the economic security of rural development and demonstrated that maintaining the long-term productivity of land resources is essential for regional sustainability¹²⁸. The combined findings of these studies suggest

¹²⁵ Lopes, C. L., Cozendey, G., & Chiavari, J. (2024, December 3). *Restoring Brazil’s public lands: Exploring public-private partnership options*. Climate Policy Initiative.

<https://www.climatepolicyinitiative.org/publication/restoring-brazils-public-lands-exploring-public-private-partnership-options/>

¹²⁶ Tsybaliuk, I. O., Khomiuk, N. L., Kozliuk, V., Bilous, O., & Voinov, I. (2025). *Model of comprehensive land restoration as a tool for strategic management in the public and private sectors*. In P. Jarosz & L. Cherchyk (Eds.), *Managerial Practices and Challenges in Various Economic Sectors: Scientific Monograph* (pp. 231–246). Przeworsk, Poland: WSSG.

¹²⁷ Khomiuk, N. L. (2019). *Diversification of rural development in conditions of decentralization: Monograph*. Lutsk: Vezha-Druk.

¹²⁸ Pavlikha, N. V., & Khomiuk, N. L. (2018). *Economic security of development of rural territories in Ukraine*. *International Journal of New Economics and Social Sciences*, 1(7), 119–130.

that any effective restoration model should integrate local communities (e.g., farmers, rural councils) alongside government and businesses, essentially forming a public-private-community partnership to ensure success. Moreover, subsequent research introduced inclusive growth frameworks that advocate engaging all sectors to achieve sustainable development goals, particularly in regions recovering from crisis¹²⁹.

From a theoretical standpoint, PPPs in land restoration can take various forms. Institutional economics suggests that properly designed contracts and property-rights arrangements in PPPs can reduce transaction costs and encourage private investment in public goods like soil quality. Governance theory points out that PPPs enable collaborative decision-making and resource pooling, which are crucial when addressing complex issues like land degradation that span administrative and property boundaries. For example, Khomiuk N. discussed the environmental component of sustainable development in rural areas, finding that collaborative governance mechanisms improved outcomes in land use management¹³⁰. Meanwhile, risk management theory supports PPPs as a means to distribute the risks of large-scale projects: governments may provide guarantees or co-funding to make projects viable for private partners, who in turn bring in capital and new technologies¹³¹.

Another relevant concept is “blended finance”, where public funds or international aid are used to leverage private sector financing for sustainable land use projects. This approach has been promoted by organizations like the World Bank and Global Environment Facility (GEF) as a way to achieve land degradation neutrality by 2030. The idea is that relatively small public investments (e.g. loan guarantees, interest rate subsidies) can unlock much larger private investments into land restoration by improving the risk-return profile for private investors¹³². In agricultural settings, this could mean governments supporting pilot projects for soil remediation or irrigation, which agribusiness firms then scale up commercially.

Finally, innovation theory emphasizes the role of technology and new business models. PPPs can foster innovation by linking scientific research and private

¹²⁹ Pavlikha, N. V., Tsymbaliuk, I. O., Khomiuk, N. L., Voichuk, M. V., Savchuk, A. Yu., Kolomeichuk, V. V., & Tsymbaliuk, S. M. (2022). *Bezpeka staloho rozvytku rehioniv ta terytorialnykh hromad Ukrainy na zasadakh inkliuzyvnoho zrostannia* [The security of sustainable development of regions and territorial communities of Ukraine based on principles of inclusive growth]. Lutsk: Vezha-Druk.

¹³⁰ Khomiuk, N. L. (2021). *Diagnosis of the environmental component of sustainable development of rural areas in Ukraine*. *International Journal of New Economics and Social Sciences*, 1(13), 49–60.

¹³¹ Lopes, C. L., Cozendey, G., & Chiavari, J. (2024, December 3). *Restoring Brazil's public lands: Exploring public-private partnership options*. Climate Policy Initiative. <https://www.climatepolicyinitiative.org/publication/restoring-brazils-public-lands-exploring-public-private-partnership-options/>

¹³² Lopes, C. L., Cozendey, G., & Chiavari, J. (2024, December 3). *Restoring Brazil's public lands: Exploring public-private partnership options*. Climate Policy Initiative. <https://www.climatepolicyinitiative.org/publication/restoring-brazils-public-lands-exploring-public-private-partnership-options/>

enterprise. For instance, digital platforms for land monitoring, precision agriculture techniques, or carbon finance mechanisms (like paying farmers for soil carbon sequestration) can be implemented more effectively when public agencies create enabling policies and the private sector supplies the tech solutions¹³³. As Khomiuk N. and Pavlikha N. noted in their study on diversification, innovation, and inclusive institutions, these factors drive sustainable outcomes in rural economies¹³⁴. Thus, an effective PPP for land restoration after the war should incorporate cutting-edge approaches – from GIS mapping of mine contamination to drought-tolerant crop varieties – within a partnership framework that ensures these innovations serve the public good.

The theoretical groundwork indicates that PPP-based land restoration aligns with sustainable land management principles, risk-sharing, and collaborative governance. Public partners contribute strategic oversight, regulatory support, and initial funding, while private partners contribute efficiency, innovation, and additional resources¹³⁵. The following sections will examine how these theoretical concepts play out in practice worldwide and what lessons can be drawn for the innovative restoration of Ukraine’s war-impacted agricultural lands.

International practices of PPP in land restoration

Around the globe, public-private partnerships have been used, with varying success, to combat land degradation and rehabilitate ecosystems. Reviewing international experiences provides insight into effective models and everyday challenges. Three domains are particularly illustrative: desertification control, post-industrial land reclamation, and post-conflict land restoration.

Combating Desertification through PPPs. One prominent example is Africa’s Great Green Wall initiative, wherein over 20 countries, international organizations, and local communities collaborate to restore degraded land across the Sahel. This large-scale project leverages public funding from the African Union, World Bank, and UNCCD alongside private investment and NGO participation to plant trees, improve agricultural practices, and create green jobs. Business participation has been

¹³³ Down to Earth. (2019, September 3). UNCCD COP 14: Public-private partnership can help restore degraded lands. <https://www.downtoearth.org.in/climate-change/unccd-cop-14-public-private-partnership-can-help-restore-degraded-lands--66646#:~:text=Globally%2C%203,to%20help%20tackle%20environmental%20problems>

¹³⁴ Khomiuk, N. L., & Pavlikha, N. V. (2021). *Organizational and economic mechanism of diversification of sustainable development of rural areas in the conditions of decentralization*. *National Interest Academic Journal*, 2(6).

¹³⁵ Lopes, C. L., Cozendey, G., & Chiavari, J. (2024, December 3). *Restoring Brazil’s public lands: Exploring public-private partnership options*. *Climate Policy Initiative*. <https://www.climatepolicyinitiative.org/publication/restoring-brazils-public-lands-exploring-public-private-partnership-options/>

encouraged through incentives for sustainable agriculture and carbon offset opportunities. At the UN Convention to Combat Desertification (UNCCD) CoP14, business leaders highlighted successful PPP interventions – such as private agritech companies introducing drip irrigation to reclaim salinised farms in India – as evidence that private players bring innovative technology and capital that can transform degraded lands. The Global Environment Facility (GEF), a partnership of 183 countries and the private sector, has poured nearly \$18 billion into land restoration and related environmental projects worldwide. GEF-funded programs have achieved notable results: for instance, watershed restoration projects in India’s Uttarakhand state boosted land productivity by 10%, and reforestation in Africa’s Sahel (the “Green Wall”) is improving livelihoods in communities once plagued by drought. These examples show that PPPs can attract diverse stakeholders to invest in restoration when there are clear mutual benefits – governments meet environmental targets, companies fulfil corporate social responsibility or gain carbon credits, and local communities receive jobs and better land¹³⁶.

Reclamation of Industrial and Mining Lands. In many countries, degraded lands result from mining, oil extraction, or industrial contamination. PPP models have been applied to reclaim such lands. For example, in Brazil, the restoration of deforested public lands in the Amazon is being pursued through innovative concession-based PPPs. The Brazilian government updated its Public Forest Management Law in 2023 to facilitate forest restoration concessions, whereby private firms can bid to restore and sustainably use public land (e.g. through reforestation and harvest of non-timber products). These concessions are essentially PPP contracts: the private concessionaire invests in restoration and can generate revenue from the land under strict sustainability conditions. At the same time, the government provides legal frameworks and oversight. Studies by the Climate Policy Initiative identified that broadening partnership models – including traditional public service concessions and build-operate-transfer schemes – could accelerate large-scale restoration by balancing risks and responsibilities between public and private actors. For example, a restoration PPP in Brazil’s Pará state (Triunfo do Xingu APA) is under development, aiming to reforest thousands of hectares; the government sets the performance standards, and a private consortium will carry out planting and maintenance, recouping costs via sustainable harvesting and possible payment for ecosystem services. In the United States and Europe, there are examples where former mining sites have been restored through PPPs – governments mandate or fund cleanup, while

¹³⁶ Down to Earth. (2019, September 3). UNCCD COP 14: Public-private partnership can help restore degraded lands. <https://www.downtoearth.org.in/climate-change/unccd-cop-14-public-private-partnership-can-help-restore-degraded-lands--66646#:~:text=Globally%2C%203,to%20help%20tackle%20environmental%20problems>

private companies with expertise in environmental engineering execute the work, often in exchange for development rights or tax incentives. These experiences underline the need for clear contractual terms: who bears long-term liability, how profits (if any) are shared, and what happens if ecological outcomes are not met¹³⁷.

Post-Conflict Land Restoration. Post-conflict situations share similarities with Ukraine's current challenges. In countries like Bosnia and Herzegovina, Cambodia, and Colombia, efforts to restore agricultural land after war have combined public programs with private and international support. A key focus is always demining and removing hazards as a first step. In Cambodia, for example, the national mine action centre (public) partners with private demining contractors and NGOs (often funded by foreign donors) to clear land, which is then returned to productive use. This PPP-like model has dramatically reduced mine-contaminated areas, enabling farming to resume. Another example is in Rwanda, where post-conflict land consolidation and terracing programs were implemented through community-public-private partnerships: the government provided policy support and coordination, private firms supplied machinery and inputs, and local cooperatives carried out restoration works on terraced hillsides, resulting in improved food production.

Notably, the United Nations and World Bank often act as catalysts for PPPs in post-conflict reconstruction, blending public grants with private investments. The European Investment Bank's recent Ukraine Recovery Programme (initiated 2024) follows this pattern: it is publicly backed by the EU and Ukraine's government but seeks to fund projects (including critical infrastructure and possibly agricultural facilities) with private sector implementation, thus working as a PPP umbrella¹³⁸. While initially targeting infrastructure like roads and bridges, such programs increasingly recognise land decontamination and rehabilitation as foundational infrastructure for the agriculture sector's recovery.

In reviewing these international practices, several lessons emerge:

- stakeholder engagement. PPP projects succeed when they engage local communities and beneficiaries. Whether planting trees in the Sahel or clearing mines in Asia, involving local people (as labour, decision-makers, or co-investors) ensures that restoration efforts are maintained and accepted. It also adds a "social" component to PPP, extending it to public-private-people partnerships;

¹³⁷ Lopes, C. L., Cozendey, G., & Chiavari, J. (2024, December 3). *Restoring Brazil's public lands: Exploring public-private partnership options*. Climate Policy Initiative. <https://www.climatepolicyinitiative.org/publication/restoring-brazils-public-lands-exploring-public-private-partnership-options/>

¹³⁸ European Investment Bank. (2024, March 8). *EIB-backed Ukraine recovery programme kicks off as critical infrastructure projects get underway*. <https://www.eib.org/en/press/all/2024-101-eib-backed-ukraine-recovery-programme-kicks-off-as-critical-infrastructure-projects-get-underway>

- innovative financing. Many successful cases use creative financing models. For instance, green bonds and impact investment funds have been deployed to finance land restoration in Africa and Latin America, repaying investors from future land productivity gains or eco-tourism revenues. Insurance mechanisms (backed by public funds) can reassure private investors against risks such as project failure or renewed conflict;

- clear metrics and enforcement. PPP contracts in land restoration must include clear environmental and social performance metrics – e.g. hectares restored, soil quality improved, jobs created – and enforcement mechanisms. In some concession models, penalties or early termination occur if the private party fails to meet reforestation targets (Brazil’s concessions have such clauses to protect public interest¹³⁹). Conversely, well-performing partners might receive extensions or bonuses, creating positive incentives;

- technology and knowledge transfer. International PPPs often facilitate knowledge transfer. For example, Israeli drip irrigation technology shared via PPP pilots in India, or European expertise in mine detection used in Southeast Asia, have built local capacity. Ukraine can similarly benefit from global expertise through PPP arrangements. Indeed, companies specialising in environmental remediation or digital mapping could partner with Ukrainian entities under favourable conditions to address the aftermath of the war.

In conclusion, global practices demonstrate that PPP approaches can be tailored to land restoration needs, from greening deserts to cleaning battlefields. The common thread is that by leveraging the strengths of each sector, PPPs can tackle scale and complexity that neither sector could manage alone. Building on these insights, the following section proposes specific models and innovative tools for land restoration PPPs, with an eye towards applicability in Ukraine’s agricultural heartland.

Proposed models and innovations for land restoration PPPs

Building on theory and global experience, this section outlines proposed models for implementing innovative PPPs in agricultural land restoration. The proposals focus on integrating institutional, financial, and technological innovation within the PPP framework. Four interrelated models are presented: a comprehensive PPP process model for post-war land restoration, a risk-sharing investment model, a

¹³⁹ Lopes, C. L., Cozendey, G., & Chiavari, J. (2024, December 3). *Restoring Brazil’s public lands: Exploring public-private partnership options*. Climate Policy Initiative. <https://www.climatepolicyinitiative.org/publication/restoring-brazils-public-lands-exploring-public-private-partnership-options/>

community-based micro-PPP model, and innovative tools (digital and financial) to support PPP projects.

Comprehensive PPP Process Model. A conceptual model was proposed in which the land restoration process is managed through a PPP coordination unit that links public and private efforts from assessment to monitoring. It starts with joint planning and evaluation, where government agencies (e.g. agriculture and environment ministries) and private experts (e.g. agronomists, environmental engineers) conduct damage assessments and identify priority areas (such as heavily mined farmlands or drought-prone districts). Next, in the mobilization phase, public authorities provide enabling conditions – policy support, expedited permits, co-funding – while private partners contribute capital, equipment, and know-how (for example, demining technology or soil amendment techniques)¹⁴⁰. An agreed PPP framework contract defines roles: the public side may subsidize certain activities (demining, infrastructure rehabilitation), and the private side may take responsibility for performing the work and possibly operating any revenue-generating components (e.g. a reclaimed land lease or a biomass energy facility on restored land). Then comes implementation, where restoration actions are carried out: removal of explosives and rubble, land levelling, replanting vegetation, improving soil with organic matter, rebuilding irrigation systems, etc. These actions are often subcontracted to specialized firms under the PPP oversight. Finally, monitoring and maintenance are ensured through public regulation (e.g. land use standards, environmental monitoring by agencies) and private management (e.g. agribusiness maintaining soil fertility via modern farming practices). Throughout this process, the PPP coordination unit ensures transparency, stakeholder input (including local farmers and community councils), and adaptive management – adjusting plans based on results. This comprehensive model reflects best practices in co-management and is consistent with the view that science-based management decisions and effective economic models are essential for ensuring sustainable land use across sectors¹⁴¹.

Risk-Sharing Investment Model. Financing large-scale land restoration is challenging due to high upfront costs and uncertain returns. A model was proposed where public funding is used strategically to de-risk projects and attract private investors. One approach is the creation of a Land Restoration Fund as a PPP venture.

¹⁴⁰ Lopes, C. L., Cozendey, G., & Chiavari, J. (2024, December 3). *Restoring Brazil's public lands: Exploring public-private partnership options*. Climate Policy Initiative.

<https://www.climatepolicyinitiative.org/publication/restoring-brazils-public-lands-exploring-public-private-partnership-options/>

¹⁴¹ Tsymbaliuk, I. O., Khomiuk, N. L., Kozliuk, V., Bilous, O., & Voinov, I. (2025). *Model of comprehensive land restoration as a tool for strategic management in the public and private sectors*. In P. Jarosz & L. Cherchyk (Eds.), *Managerial Practices and Challenges in Various Economic Sectors: Scientific Monograph* (pp. 231–246). Przeworsk, Poland: WSSG.

For example, Ukraine could establish a fund (with support from its government and international donors) that offers concessional loans or guarantees for restoration projects carried out by private firms or public-private joint companies. This fund would absorb some risk, such as covering initial demining costs or insuring against crop failure in reclaimed areas. It would make it more enticing for private agribusinesses, construction companies, or impact investors to participate. The European Commission's Green Deal and recovery programs prioritize such blended finance instruments¹⁴². Under this model, a private investor might finance the rehabilitation of an irrigation system on war-damaged land in exchange for a share of future agricultural profits. At the same time, the Land Restoration Fund guarantees a minimum return or compensates if new hostilities damage the investment. This is analogous to how infrastructure PPPs often work (e.g. toll road guarantees), adapted to the agricultural sphere. Sakhno and Zaremba (2024) argue that investments in land resources are a key factor for agricultural development, and public incentives are needed to stimulate such investments in risky environments¹⁴³. By sharing risk and reward, the proposed model aims to mobilize capital at a scale commensurate with the restoration need, which in Ukraine likely runs in the tens of billions of dollars¹⁴⁴.

Community-Based Micro-PPPs. Not all restoration projects are massive; many are local and can be effectively managed by communities if given the chance. Promoting micro-PPPs was proposed where local government units (e.g. village councils or newly formed amalgamated communities) partner with local private actors (small businesses, cooperatives) to restore smaller plots of land. For instance, a community whose farmland was littered with debris and trenches can form a cooperative that partners with the local council: the council might provide equipment (or a subsidy to rent equipment) and technical guidance from extension services. In contrast, the cooperative provides labour and some matching funds. Together, they restore the land and then share its productive use. Formalizing this in a micro-PPP agreement ensures clarity on inputs and benefits. Such models build on Ukraine's decentralization reforms that empowered local communities in development projects¹⁴⁵. In practice, this could manifest as local public authorities contracting a group of local farmers to rehabilitate a 50-hectare plot, with payment partly in kind

¹⁴² European Commission. (2019). *The European Green Deal*. https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

¹⁴³ Sakhno, A. A., & Zaremba, O. Ye. (2024). *Investments in land resources as a factor of agricultural sector development*. *Investytsiyyi: praktyka ta dosvid*, (22), 56–62. <https://doi.org/10.32702/2306-6814.2024.22.56>

¹⁴⁴ Kimbrough, L. (2025, February). *Study says land restoration worldwide can be funded with tiny fraction of global GDP*. *Mongabay*. <https://news.mongabay.com/2025/02/study-says-land-restoration-worldwide-can-be-funded-with-tiny-fraction-of-global-gdp/>

¹⁴⁵ Khomiuk, N. L. (2019). *Diversification of rural development in conditions of decentralization: Monograph*. Lutsk: Vezha-Druk.

(the farmers get a long-term lease on the plot once restored). This approach incentivizes quality work – the farmers have a stake in the land’s future productivity. It also addresses a potential labour bottleneck: large companies might not prioritise small or scattered plots, whereas locals are motivated to restore their surroundings. The role of the national government here is to simplify procedures and perhaps co-finance these micro-PPPs, treating them as sub-projects of the larger reconstruction effort. Empowering communities through PPPs also enhances social resilience and trust, which are crucial in a post-conflict recovery.

Innovative Tools in PPPs. To maximize impact, PPP-based restoration should integrate modern tools. Digital innovations like remote sensing, geographic information systems (GIS), and data analytics enable precise mapping of degraded areas and progress monitoring. In collaboration with companies like EOS Data Analytics, Ukraine's tech sector has already been utilizing satellite imagery to assess soil degradation and crop conditions¹⁴⁶. Embedding such capabilities in PPP projects can improve efficiency – for example, drones could guide deminers to priority zones, or IoT soil sensors could guide irrigation schedules on reclaimed lands. PPP agreements can specify the use of such technologies and ensure data sharing between public and private partners, contributing to transparency. Financial innovations include performance-based payments (private partners earn more if restoration meets specific targets, aligning profit with public good) and carbon finance. Land restoration often has carbon sequestration benefits – reforestation or enriching soil carbon, which can potentially be monetised through carbon credits. A PPP could be structured to tap into carbon markets: the government authorizes and validates carbon credits from restored lands, and private partners can sell those credits internationally, generating revenue that makes the project financially viable. The European Green Deal and other climate policies support such mechanisms, and pilot projects under UNEP have shown that land restoration can indeed be funded through carbon credits and climate finance¹⁴⁷. Another tool is contract farming PPPs: agribusiness firms contract with local farmers (with government oversight) to grow certain crops on restored land, providing inputs and technical help – this guarantees market access and fair prices, ensuring the restored land is used productively and profitably. In Ukraine, some large agriculture companies could engage in such PPP-like arrangements, especially if encouraged by public programs¹⁴⁸. Finally, capacity-building and

¹⁴⁶ EOS Data Analytics. (2024, December 30). Soil degradation: Causes, consequences and methods of combating it. <https://eos.com/uk/blog/dehradatsiia-gruntiv/>

¹⁴⁷ European Commission. (2019). *The European Green Deal*. https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

¹⁴⁸ Polishchuk, D. (2024, November 21). *Innovative technologies in Ukraine’s agricultural sector*. IO.ua. <https://io.ua/innovatsijni-tehnologiyi-v-agrosektori-ukrayiny>

research should be part of the innovation package: PPPs can fund joint research with universities on, say, phytoremediation plants that extract toxins from soil, or best practices for regenerating soil biota. This dynamic knowledge component will help tailor innovations to local conditions.

The proposed models advocate for integrated, multi-level PPP approaches to land restoration: a broad coordinating framework to manage the overall process, financial structures to lure investment, inclusive local partnerships, and cutting-edge tools to enhance effectiveness. These innovations echo the academic perspective that modern management of land resources must incorporate digitalization and cross-sector collaboration¹⁴⁹. The following section will narrow the focus to Ukraine, discussing how these models and approaches can be implemented given the country's unique circumstances, and what progress is already being made under government strategies and pilot projects.

Ukrainian context: PPPs for post-war land restoration

Ukraine's agricultural lands – famed for their fertile black soil – have suffered unprecedented damage from Russia's full-scale invasion beginning in 2022. By early 2023, an estimated 174,000 square kilometres of Ukraine (over 17 million hectares, much of it farmland) were potentially contaminated with landmines and unexploded ordnance¹⁵⁰. Entire fields have been scorched by shelling or deliberately burned: in Donetsk and Kherson regions alone, tens of thousands of hectares of crops were lost to wartime fires during 2022–2023¹⁵¹. The socioeconomic toll is immense, beyond immediate food production losses, the rural economy has been disrupted and depopulated in many areas. The Ukrainian government, recognizing these challenges, has incorporated land restoration into its national recovery and development plans. For instance, the State Regional Development Strategy 2021–2027 (adopted before the invasion but still relevant) emphasizes sustainable land use and public–private cooperation in regional projects¹⁵². More recently, in 2023–2024, government officials have actively promoted initiatives to clear and rehabilitate agricultural land,

¹⁴⁹ Tsymbaliuk, I. O., Khomiuk, N. L., Kozliuk, V., Bilous, O., & Voinov, I. (2025). *Model of comprehensive land restoration as a tool for strategic management in the public and private sectors*. In P. Jarosz & L. Cherchyk (Eds.), *Managerial Practices and Challenges in Various Economic Sectors: Scientific Monograph* (pp. 231–246). Przeworsk, Poland: WSSG.

¹⁵⁰ State Emergency Service of Ukraine. (n.d.). *Contacts*. Ministry of Internal Affairs of Ukraine. Retrieved July 6, 2025, from <https://mvs.gov.ua/en/contacts/state-emergency-service>

¹⁵¹ Wikimedia Commons. (2023, July 17). *Burnt wheat field in Illinivka* [Photograph]. [https://commons.wikimedia.org/wiki/File:Burnt_wheat_field_in_Illinivka,_2023-07-17_\(1\).jpg](https://commons.wikimedia.org/wiki/File:Burnt_wheat_field_in_Illinivka,_2023-07-17_(1).jpg)

¹⁵² Ministry for Communities and Territories Development of Ukraine. (2020). *State Regional Development Strategy for 2021–2027*. <https://mtu.gov.ua/files/Державна%20стратегія%202021-2027%20роки.pdf>

explicitly calling for private sector involvement and investment in the recovery process¹⁵³.

A significant step has been launching a landmine clearance compensation program for farmers. This public program offers financial support to private farmers and companies that incur costs to survey and demine their fields. It is a PPP mechanism where the state shares the burden of making land safe again¹⁵⁴. By subsidizing demining, the government aims to encourage private farm operators to begin restoration on their lands now, rather than waiting years for state demining units to cover all areas. It's an explicit acknowledgement that restoring millions of hectares quickly is impossible without leveraging private efforts. Another development is the engagement of international donors and corporations through the "United24" platform and other channels – funds have been raised to buy demining machines, some donated by private companies or foreign governments, again creating a partnership dynamic between public needs and private resources.

Legislatively, Ukraine has a PPP law and a history of using PPPs for infrastructure (like roads and energy). Applying it to land restoration may require adjustments. There have been proposals in the Verkhovna Rada (parliament) to categorize specific land restoration projects as "critical infrastructure" to expedite PPP contracts and simplify procurement. Moreover, discussions are underway about offering tax breaks or land lease incentives to companies that invest in land recovery. For example, a company that clears and rehabilitates community-owned wasteland might be granted a long-term lease on that land as an investment return. This resonates with the risk-sharing investment model described earlier.

On a smaller scale, local governments and NGOs in Ukraine are piloting community-driven restoration. In Kyiv oblast, a pilot project in 2023 brought together a local council, a Ukrainian agritech startup, and an international NGO to restore a war-damaged orchard: the council provided seedlings and repairs to the local well, the startup provided soil testing and organic fertilizers, and the NGO provided grant funding and oversight. Such pilots, while modest, demonstrate the potential of multi-partner collaboration. Scaling them up would effectively create numerous micro-PPPs aligned with the national program.

¹⁵³ Tsymbaliuk, I. O., Khomiuk, N. L., Kozliuk, V., Bilous, O., & Voinov, I. (2025). *Model of comprehensive land restoration as a tool for strategic management in the public and private sectors*. In P. Jarosz & L. Cherchyk (Eds.), *Managerial Practices and Challenges in Various Economic Sectors: Scientific Monograph* (pp. 231–246). Przeworsk, Poland: WSSG.

¹⁵⁴ Ministry of Economy of Ukraine. (2024, May 30). *Landmine clearance compensation program for farmers launched to accelerate Ukraine's demining* – Yuliia Svirydenko. <https://me.gov.ua/News/Detail?id=ace8dac6-1774-440a-a430-7c93e989b085&lang=uk-UA>

Ukraine can also draw on its pre-war environmental policies. The National Environmental Strategy till 2030 set goals for land degradation neutrality and promoted the reclamation of contaminated lands as a priority¹⁵⁵. Under that framework, public–private cooperation was encouraged for re-cultivating former industrial lands and improving soil fertility through investments in agro-technology. The war’s impact has shifted the focus but not the underlying imperative. The strategy’s existence means an established policy recognises that PPPs and investments are needed for land resource management – a helpful starting point for war-related efforts.

One promising avenue is integrating climate adaptation projects with war restoration. Due to climate change, many Ukrainian regions face heightened drought risk (especially in the south). Restoring lands in those areas might involve building modern irrigation and water-saving systems. The government could tender such projects as PPPs: a private consortium designs, builds, and operates an irrigation network that serves clusters of farms, while the government (perhaps with European Bank support) co-funds construction and ensures fair water pricing. This way, war recovery and climate resilience go hand in hand. Indeed, Matviiev M. notes that the war’s impact on the land market is intertwined with environmental challenges, and recovery plans must consider sustainable land use in future¹⁵⁶.

It would be remiss not to acknowledge the challenges of implementing PPPs for land restoration in Ukraine. One challenge is security: ongoing conflict or risk of re-escalation may deter private investors. This is where international guarantees or conflict insurance (possibly through a multinational fund) might be required to backstop PPP projects. Another issue is governance and corruption: previously (pre-war), PPPs in Ukraine faced criticism in specific sectors for a lack of transparency. Ensuring open, competitive procurement and robust oversight in these restoration PPPs will be vital to maintaining trust among citizens and international partners. Additionally, technical capacity needs bolstering: local authorities might need training to manage PPP contracts, and small farmers need support to partner with larger entities effectively. With help from EU institutions, the Ukrainian government is conducting capacity-building on PPP management as part of the recovery agenda, which should mitigate this issue.

Despite challenges, the momentum for rebuilding Ukraine’s agriculture is strong. There is a broad consensus that the private sector, from local farmers to

¹⁵⁵ Verkhovna Rada of Ukraine. (2019). *Basics (Strategy) of the State Environmental Policy of Ukraine until 2030*. <https://zakon.rada.gov.ua/laws/show/2697-19#Text>

¹⁵⁶ Matviiev, M. (2023, May 2). Agriculture and the land market in Ukraine: Impact of the war. *VoxUkraine*. <https://voxukraine.org/silске-gospodarstvo-ta-rynok-silskogospodarskyh-zemel-ukrayiny-vplyv-vijny>

multinational agribusiness, must be engaged alongside public authorities to restore previous production levels and “build back better”, creating a more sustainable and climate-resilient agricultural system. Public–private partnerships, if well-designed, provide the vehicle for that transformation.

Table 1 systematizes the combined effects of military conflict and climate pressures on land degradation in Ukraine, while also outlining the required restoration interventions and opportunities for public-private partnership involvement.

Table 1

War- and Climate-Induced Land Degradation: Impacts and Restoration Needs (PPP Opportunities) *

Degradation factor	Effects on land	Restoration interventions	PPP opportunities
1	2	3	4
Explosive contamination (war)	Soil polluted with metal fragments, unexploded mines; unsafe for cultivation; compaction from blasts	Demining and UXO removal; soil remediation (e.g. phytoremediation of heavy metals)	Public demining units partner with private demining firms (shared funding); agritech companies deploy soil cleaning technology with state support (e.g. tax incentives for soil remediation services)
Physical destruction (war)	Craters, trenches, and vehicle ruts; topsoil displaced; drainage disrupted	Land re-leveling and grading; reintroduction of topsoil or organic matter; re-establish drainage canals	Local construction firms in PPP contracts to restore land contour (government provides equipment or fuel subsidies); community cooperatives supported to fill craters and restore fields with public-provided materials
Chemical pollution (war)	Oil spills, chemicals from destroyed infrastructure or munitions (e.g. propellants) leading to toxic soil and water	Soil testing and detoxification (liming, biochar, etc.); removal of contaminated soil hotspots; phytoremediation crops (sunflower, hemp) to absorb toxins	Joint projects between environmental NGOs, state ecological service, and agribusiness: government sets targets and covers costs of testing, private sector executes cleanup and can use restored land for production under oversight
Burnt crops and vegetation (war)	Loss of vegetation cover; soil exposed to erosion; organic matter burnt off reducing fertility	Mulching of burnt fields; planting cover crops or green manure to restore soil organic carbon; erosion control structures if needed	PPP where government supplies seeds and amendments, private agro-companies or cooperatives implement sowing of cover crops and manage erosion controls, sharing eventual benefits (e.g. using biomass as fertilizer)

1	2	3	4
Drought and heat (climate)	Desiccation of soil; reduced moisture retention; crop failures; risk of desertification in south Ukraine	Drought-resistant crop varieties; irrigation systems installation; agroforestry (windbreaks to reduce evaporation); conservation agriculture (no-till to retain moisture)	Public funds part of infrastructure, private firms build/operate it, farmers pay usage fees; seed companies partner with government to distribute climate-resilient seeds; carbon credit schemes for agroforestry (farmers get private investment for tree-planting with government facilitation)
Intense rainfall and floods (climate)	Soil erosion, nutrient leaching; gully formation; waterlogged fields in some areas	Terracing or contour plowing on slopes; drainage improvements; replanting vegetation in erosion-prone areas; wetland restoration in floodplains	Infrastructure PPP for drainage (e.g. public water authority and private engineering firm co-invest in regional drainage channels); community PPP to maintain terraces (local labor with government extension guidance and private micro-finance for tools)
General soil exhaustion (pre-war issue)	Decline in fertility from overuse of chemicals, monoculture; soil structure degradation	Introduction of crop rotations, organic farming practices; soil ameliorants (gypsum for structure, compost for nutrients); establishment of monitoring systems for soil health	Public agricultural extension services partner with agri-holding companies to pilot sustainable practices on large farms (knowledge PPP); government provides incentives (subsidies, certification) for private farms adopting regenerative practices, effectively a PPP contract where farmers receive public support in exchange for ecosystem services (soil health improvements).

*formed by the author

Table 1 shows that different degradation causes require tailored interventions, and in each case, PPP arrangements can be crafted to leverage the strengths of various actors. For example, demining is capital-intensive and dangerous – a natural fit for a government-supported PPP so that specialized firms can do the job with cost-sharing. In contrast, combating drought may involve infrastructure changes (irrigation) and farming practices, where private agribusiness investment under government guarantees can drive progress.

To ensure the effectiveness and sustainability of agricultural land restoration in post-war Ukraine, adopting a diversified portfolio of public–private partnership (PPP) models tailored to different contexts is essential. International experience demonstrates that no universal PPP model suits all restoration scenarios. Instead, a

combination of mechanisms – from concession-based approaches to community-driven initiatives and innovative blended finance instruments – can maximize impact when aligned with local needs, resource availability, and legal frameworks. The following table provides an overview of relevant PPP models, highlighting their structure, advantages, limitations, and potential applicability in Ukraine’s recovery and development framework. As shown in Table 2, a range of PPP models offer varying degrees of flexibility, stakeholder involvement, and investment incentives, each suited to specific land degradation contexts and regional recovery strategies in Ukraine.

Table 2

Examples of PPP Models/Initiatives for Land Restoration *

PPP model/initiative	Description and use case	Features (advantages / disadvantages)	Applicability to Ukraine
1	2	3	4
Restoration Concession (Brazilian model)	Government grants a private entity rights to restore and utilize a degraded public land (e.g. deforested area) for a period. E.g., reforest an area and then sustainably harvest timber or non-timber products.	Advantages: leverages private investment, clear responsibility. Disadvantages: the private sector assumes risks and may need profit (not suitable for purely non-commercial land).	It could be piloted for forest lands or nature reserves damaged in war – a company could replant forests in exchange for future wood use. Legal adaptation and strong oversight are needed to ensure environmental goals are met.
Build-Operate-Transfer (BOT) for Irrigation	A private partner builds an irrigation or drainage system, operates it for a fixed term to recoup costs (through water fees), then transfers ownership to a public authority.	Advantages: introduces efficiency and investment in infrastructure. Disadvantages: tariff setting is critical (ensure farmers can afford water), and requires stable usage.	Highly relevant in southern Ukraine, where climate adaptation is needed. The Government and EIB could co-fund a company that builds modern irrigation networks, ensuring agriculture on restored dry lands.
Green Finance Fund (Blended Finance)	A fund pooling public, private, and donor money to finance small restoration projects via grants or low-interest loans. E.g., GEF or World Bank-backed funds that local PPP projects can tap.	Advantages: it reduces risk for private actors and enables many small projects. Disadvantages: requires good management and transparent criteria for disbursement.	Ukraine can establish a “Land Restoration Fund,” as discussed, by aligning donor aid and private bank capital. Could finance anything from demining to soil improvement on a PPP cost-share basis.

1	2	3	4
Community Public–Private Partnership	Local government + community cooperative + maybe a local business jointly undertake land improvement. E.g., a cooperative and village council reclaim an abandoned field, and a local business provides machinery.	Advantages: it empowers communities and uses local knowledge. Disadvantages: limited capital and expertise, needs support to scale.	Very applicable for Ukraine’s decentralization context, especially in villages where war damage is patchy. Could be promoted by the oblast authorities with micro-grants. Builds social cohesion.
Corporate Social Responsibility (CSR) PPP	Large companies (e.g., food processors, supermarkets) invest in restoration as part of CSR or securing supply chains, in partnership with the Government. E.g., a brewery funds restoration of barley fields and training of farmers, gov’t facilitates land leases.	Advantages: mobilizes private funds for public good, good PR for the company. Disadvantages: might focus on economically valuable lands, ignore others, and not always be a formal contracts.	Some Ukrainian and multinational companies have shown interest in supporting farmers (e.g., grain exporters). Formalising CSR efforts into PPP agreements (with targets and maybe tax breaks) can channel resources into restoring key crop areas.
Land Banks or Land Swaps (Innovative policy PPP)	Public entity accumulates degraded land (via purchase or swap), rehabilitates it, possibly using private contractors, then resells or leases it to private users. A flip model: buy low (damaged), invest, sell/lease high (restored).	Advantages: it ensures restoration happens before private exploitation and can generate funds to reinvest. Disadvantages: upfront public capital and legal processes are needed for land acquisition.	Ukraine is considering a State Land Bank for post-war recovery. This could operate like a PPP: public-led but with private capital injection. It would acquire ruined lands from owners (who may want to leave), restore them via contracted companies, lease them to new farmers/investors, and recycle proceeds.

*formed by the author

Table 2 compares diverse PPP models. It shows that PPPs are not one-size-fits-all; each has advantages and caveats. For Ukraine, a mix is needed. For instance, restoration concessions might work in forestry or nature reserves, BOT in irrigation infrastructure, blended finance for broad support, and community PPPs for grassroots projects. The table highlights that flexibility and context specificity are key – policies should enable various models to flourish where appropriate.

Conclusions

Agricultural land restoration in the wake of war and amid ongoing climate stress is daunting, but as this chapter has argued, innovative public–private partnership approaches offer a viable and effective path forward. The key conclusions and recommendations from our analysis are:

- *synergy of sectors.* Land restoration is as much a socio-economic challenge as an environmental one. Combining the strengths of the public sector (strategic oversight, funding, regulatory power) with those of the private sector (innovation, efficiency, capital) creates a synergy necessary for large-scale impact¹⁵⁷. The academic and practical evidence shows that neither sector can single-handedly resolve the complex aftermath of war on land. Still, together, through PPPs, they can mobilise unprecedented resources and know-how. Therefore, Ukraine’s policy-makers and development partners should mainstream PPP models in all land recovery programs;
- *frameworks and models exist.* International experience provides tested PPP models – from Brazil’s forest concessions to Africa’s Great Green Wall funding mechanisms – that can be adapted to Ukraine’s context. A comprehensive PPP process model, as described, ensures end-to-end coordination of restoration efforts, while specific arrangements like BOT contracts for irrigation or community micro-PPPs fill niche needs. Ukraine should adopt a portfolio approach: implement multiple PPP models in parallel, tailored to project size and type, under an overarching national framework;
- *contemporary support and alignment.* The alignment of Ukraine’s restoration efforts with global initiatives (UN Decade on Ecosystem Restoration, EU Green Deal, etc.) will facilitate access to technical and financial support. International organizations are keen to back projects that marry climate action with rebuilding – PPP proposals incorporating climate resilience (e.g. carbon financing, renewable energy on rehabilitated lands) will find fertile ground for funding. For example, integrating a reforestation PPP into the European Green Deal context could unlock grants and loans while meeting Ukraine’s obligation to environmental policy convergence with the EU¹⁵⁸;
- *incentivize and de-risk private involvement.* A critical insight is that private actors will engage in land restoration at the necessary scale only if the ventures are economically viable or cost-neutral with social benefits. This means the

¹⁵⁷ Down to Earth. (2019, September 3). UNCCD COP 14: Public-private partnership can help restore degraded lands. <https://www.downtoearth.org.in/climate-change/unccd-cop-14-public-private-partnership-can-help-restore-degraded-lands--66646#:~:text=Globally%2C%203,to%20help%20tackle%20environmental%20problems>

¹⁵⁸ European Commission. (2019). *The European Green Deal*. https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

public must thoughtfully deploy incentives: co-financing, tax breaks for restoration activities, guarantees against political risk, and payment for ecosystem services. The recently launched demining compensation program is a good start¹⁵⁹. Further, establishing the proposed Land Restoration Fund would systematically de-risk and co-fund projects, signalling investors that Ukraine is “open for green business.” As Kuzmenko H and Telendii A. emphasize, effective public governance in recovery involves creating an environment where businesses can confidently invest in rebuilding and innovation¹⁶⁰;

- *local engagement and social inclusion.* PPP-based restoration must not neglect the human dimension. War has traumatized rural communities; actively involving them in rebuilding their lands can provide not just economic revival but also psychological and social healing. Thus, priority should be given to PPP projects that create local employment (e.g. hiring and training local people in demining, construction, and replanting) and that return restored land to community use where appropriate. Additionally, special efforts should target small farmers, ensuring they are not left behind in a recovery dominated by large players. Micro-PPPs and cooperative models can empower smallholders to partake in and benefit from the restoration process;

- *monitoring, transparency, and adaptation.* Implementing PPPs in a post-war setting requires robust monitoring and flexible management. All PPP agreements should have clear, measurable targets (hectares cleared, soil quality indices, etc.) and be transparent to the public to build trust. An independent monitoring body could be established to track the progress of land restoration PPPs and publish regular reports. Given the novelty and scale, some approaches will likely need adjustment – a feedback mechanism to learn from early pilot projects and refine PPP templates is crucial. The ability to adapt and iterate will determine long-term success as conditions evolve (both in security and climate).

Thus, while public-private partnerships (PPPs) are not a universal solution, they are critical in restoring Ukraine’s agricultural land. These partnerships embody the collaborative logic required to address systemic challenges: the public sector safeguards national and community interests, while the private sector contributes technological efficiency, financial leverage, and sustainability.

¹⁵⁹ Ministry of Economy of Ukraine. (2024, May 30). *Landmine clearance compensation program for farmers launched to accelerate Ukraine’s demining* – Yuliia Svyrydenko. <https://me.gov.ua/News/Detail?id=ace8dac6-1774-440a-a430-7c93e989b085&lang=uk-UA>

¹⁶⁰ Kuzmenko, H. O., & Telendii, A. A. (2024). The impact of war on Ukraine’s agricultural sector: Challenges and the role of public governance in sectoral recovery. *Scientific Notes of V. I. Vernadsky TNU*. Series: Public Administration and Administration, 35(5). <https://doi.org/10.32782/TNU-2663-6468/2024.5/04>

The path to full soil recovery is undeniably long and resource-intensive. However, integrating innovative PPP models can significantly accelerate this trajectory while enhancing outcome quality. What would traditionally require thirty years could be accomplished in twenty – provided that the public and private sectors act in synergy, supported by sound governance and strategic coordination.

For Ukraine and other nations grappling with the dual pressures of armed conflict and climate change, embracing well-structured public–private partnerships could mark the turning point – from prolonged crisis to an inclusive and resilient agricultural renaissance that safeguards food security and revitalizes rural livelihoods.

References

Bondariev, V. (2024, October 19). *Ukraine will need almost 30 years to restore soil fertility: War damage assessment.* *Suspilne*. <https://suspilne.media/vinnytsia/857385-dla-vidnovlenna-roducosti-gruntiv-ukraini-znadobitsa-majze-30-rokiv-ocinka-zbitkiv-vid-vijni>

Down to Earth. (2019, September 3). UNCCD COP 14: Public-private partnership can help restore degraded lands. <https://www.downtoearth.org.in/climate-change/unccd-cop-14-public-private-partnership-can-help-restore-degraded-lands--66646#:~:text=Globally%2C%20,to%20help%20tackle%20environmental%20problems>

EOS Data Analytics. (2024, December 30). Soil degradation: Causes, consequences and methods of combating it. <https://eos.com/uk/blog/dehradatsiia-gruntiv/>

European Commission. (2019). *The European Green Deal*. https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

European Investment Bank. (2024, March 8). *EIB-backed Ukraine recovery programme kicks off as critical infrastructure projects get underway*. <https://www.eib.org/en/press/all/2024-101-eib-backed-ukraine-recovery-programme-kicks-off-as-critical-infrastructure-projects-get-underway>

Kimbrough, L. (2025, February). *Study says land restoration worldwide can be funded with tiny fraction of global GDP.* *Mongabay*. <https://news.mongabay.com/2025/02/study-says-land-restoration-worldwide-can-be-funded-with-tiny-fraction-of-global-gdp/>

Khomiuk, N. L. (2019). *Diversification of rural development in conditions of decentralization: Monograph*. Lutsk: Vezha-Druk.

Khomiuk, N. L. (2021). *Diagnosis of the environmental component of sustainable development of rural areas in Ukraine*. *International Journal of New Economics and Social Sciences*, 1 (13), 49–60.

Khomiuk, N. L., & Pavlikha, N. V. (2021). *Organizational and economic mechanism of diversification of sustainable development of rural areas in the conditions of decentralization*. *National Interest Academic Journal*, 2 (6).

Kuzmenko, H. O., & Telendii, A. A. (2024). *The impact of war on Ukraine's agricultural sector: Challenges and the role of public governance in sectoral recovery*. *Scientific Notes of V. I. Vernadsky TNU. Series: Public Administration and Administration*, 35 (5). <https://doi.org/10.32782/TNU-2663-6468/2024.5/04>

Lopes, C. L., Cozendey, G., & Chiavari, J. (2024, December 3). *Restoring Brazil's public lands: Exploring public-private partnership options*. *Climate Policy Initiative*. <https://www.climatepolicyinitiative.org/publication/restoring-brazils-public-lands-exploring-public-private-partnership-options/>

Matviiev, M. (2023, May 2). *Agriculture and the land market in Ukraine: Impact of the war*. *VoxUkraine*. <https://voxukraine.org/silске-gospodarstvo-ta-rynok-silskogospodarskyh-zemel-ukrayiny-vplyv-vijny>

Ministry for Communities and Territories Development of Ukraine. (2020). *State Regional Development Strategy for 2021–2027*. https://mtu.gov.ua/files/Державна%20стратегія_%202021-2027%20роки.pdf

Ministry of Economy of Ukraine. (2024, May 30). *Landmine clearance compensation program for farmers launched to accelerate Ukraine's demining – Yuliia Svyrydenko*. <https://me.gov.ua/News/Detail?id=ace8dac6-1774-440a-a430-7c93e989b085&lang=uk-UA>

Pavlikha, N. V., & Khomiuk, N. L. (2018). *Economic security of development of rural territories in Ukraine*. *International Journal of New Economics and Social Sciences*, 1(7), 119–130.

Pavlikha, N. V., Tsymbaliuk, I. O., Khomiuk, N. L., Voichuk, M. V., Savchuk, A. Yu., Kolomeichuk, V. V., & Tsymbaliuk, S. M. (2022). *Bezpeka staloho rozvytku rehioniv ta terytorialnykh hromad Ukrainy na zasadakh inkliuzyvnoho zrostannia* [The security of sustainable development of regions and territorial communities of Ukraine based on principles of inclusive growth]. Lutsk: Vezha-Druk.

Polishchuk, D. (2024, November 21). *Innovative technologies in Ukraine's agricultural sector*. *IO.ua*. <https://io.ua/innovatsijni-tehnologiyi-v-agrosektori-ukrayiny>

Sakhno, A. A., & Zarembo, O. Ye. (2024). *Investments in land resources as a factor of agricultural sector development*. *Investytsiyi: praktyka ta dosvid*, (22), 56–62. <https://doi.org/10.32702/2306-6814.2024.22.56>

State Emergency Service of Ukraine. (n.d.). *Contacts*. Ministry of Internal Affairs of Ukraine. Retrieved July 6, 2025, from <https://mvs.gov.ua/en/contacts/state-emergency-service>

Tsymbaliuk, I. O., Khomiuk, N. L., Kozliuk, V., Bilous, O., & Voinov, I. (2025). *Model of comprehensive land restoration as a tool for strategic management in the public and private sectors*. In P. Jarosz & L. Cherchyk (Eds.), *Managerial Practices and Challenges in Various Economic Sectors: Scientific Monograph* (pp. 231–246). Przeworsk, Poland: WSSG.

Verkhovna Rada of Ukraine. (2019). *Basics (Strategy) of the State Environmental Policy of Ukraine until 2030*.
<https://zakon.rada.gov.ua/laws/show/2697-19#Text>

Wikimedia Commons. (2023, July 17). *Burnt wheat field in Illinivka* [Photograph].
[https://commons.wikimedia.org/wiki/File:Burnt wheat field in Illinivka, 2023-07-17 \(1\).jpg](https://commons.wikimedia.org/wiki/File:Burnt_wheat_field_in_Illinivka,_2023-07-17_(1).jpg)

SCIENTIFIC PUBLICATION

ENTREPRENEURIAL DIMENSIONS OF MANAGEMENT AND INNOVATION: STRATEGIC, EDUCATIONAL AND SOCIO-ECONOMIC PERSPECTIVES

Author's edit

Higher School of Social and Economic in
Przeworsk

Gimnazjalna, 35, 37-200, Przeworsk,
Poland

tel.: +48 721 207 300, + 48 16 733 41 36

e-mail: wssg@vp.pl

Submitted for printing 10.09.2025

11,6 printed sheets