

Exploratory Foresight on the Transition to a Circular Economy



Action implemented by:





UN 🎯 environment programme



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION









UNIDO in brief

UNIDO is the specialized agency of the United Nations that promotes **inclusive and sustainable industrial development** (ISID) for poverty reduction, inclusive globalization and **environmental sustainability.**



EU4Environment Green Economy in Eastern Partner Countries



Context of the Exploratory Foresight

EU4Environment: EU-funded regional action 2019-2024: **20.05 million EUR** for **Eastern Partnership (EaP)** countries

A programme implemented from 2019-2024 with emphasis on **environmental action that benefits citizens** and is visible building on past successes and continued support to reforms (e.g. under EU-funded EaP GREEN) and FLEG programmes). Result 2 dedicated to Circular Economy and New Growth Opportunities.

UNIDO "Industrial capacity-building, policy advice and diagnostics for the green recovery of **Ukraine**" Project funded by the German Government in 2023-2024: **3 million EUR** for 8 outputs **Output 5:** Promotion of circular economy and strengthening of recycling capacities

Collaboration with other EU-funded initiatives in the country, including EU4Climate, EU4Business and : "Sustainable promotion and consumption patterns in Ukraine" bilateral project funded by the EU Delegation in Ukraine.





Circular Economy (CE) Ukraine – UNIDO activities

Includes a range of activity:

- 1. Resource efficiency assessment of SMEs and RECP Clubs of companies
- 2. Industrial Waste Mapping in Davydiv and Slavuta communities
- CE Baseline Study analysis of key sectors & proposals
- 4. CE Exploratory Foresight national context & foresight for strategic thinking – results for KPVCs & transformations
- 5. CE Online Training
- 6. CE Business Cases and "how to" guide
- 7. CE Project proposals







10-25 years...

CE training & communications - capacity building

5-10 years



Landscape of Future Studies



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Source: Frank Ruff



A Circular Economy is and industrial

economy that routes materials, parts and products back into use several times and creates more value and less waste. It is an alternative in which value is maintained for as long as possible, products are designed to last, and the generation of waste is minimized. (UNIDO)

CE creates additional value – economic, social and environmental.

'Socio-technical systems' are the dynamic forces driving the material flows:

The 'circularity' works from re-use and repair, to re-manufacturing & recycling, to energy recovery.

KPVCs are chains of activity, from raw materials to production, distribution, consumption, post-consumer waste.

International trade with imports / exports at every stage.



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EXPLORATORY FORESIGHT FOR CIRCULAR ECONOMY IN UKRAINE

OBJECTIVES



Explore the future developments of the CE in Ukraine both in general and for selected **key** value chains.

Devise concrete options and pathways for long term actions to implement a CE in Ukraine.



"Translate" the findings into a series of summary reports that can be easily used by the **decision-makers** to contribute to the Ukrainian CE strategy development process.



FOR WHOM?

- Government representatives.
- Business representatives.
- Civil society organizations (CSOs) and
- Non-Governmental Organisations (NGOs).
- Members of academia.
- Media outlets.



Key stages OF THE exploratory foresight exercise







PATHWAYS

WHAT IS THE WAY?

Identify pathways for CE in each KPVC and for each enabler.

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Ukraine Circular Economy: Foresight process & outcomes









THE FORESIGHT TOOLS



Expert Panels

Online surveys

Interviews findings.



- Defining **possible and desirable** scenarios and future visons.
- Identifying scenarios, visions and viable pathways of CE development.
- **Closing survey gaps** and expanding









1. Foresight scope of Circular Economy in Ukraine

Ukraine's Unique Case: Short-Term Recovery, Medium-Term Transition and Long-Term Transformation

•War Damage and Redundant Industry: Ukraine faces significant challenges, including extensive war damage and a background of redundant industry, necessitating immediate focus on short-term (H1) recovery efforts.

•Push Towards Medium-Term (H2) Transition: Notwithstanding short-term recovery needs, there is a strong push towards a medium-term transition, which aims for a modernized, sustainable, and high-value economy.
 •Visioning Long-Term (H3) Systemic Transformation: Creative thinking indicates pathways for innovation to explore new opportunities and can help to address short/medium term barriers of the green post-war recovery.

Application to Circular Economy: Transition goals extend to all aspects of the circular economy, emphasizing the importance of sustainable practices and resource efficiency.
Challenges and Barriers: Ukraine encounters numerous challenges and barriers that hinder coordinated efforts towards transition goals, and include alignment issues among business, policy, technology, and society.





FRAMEWORK FOR VISIONS & PATHWAYS

1. Economy-wide scenarios:

These cover the whole Ukraine economy: drawing from international experience and focusing on Ukraine's unique expertise and resources.

2. Key Product Value Chains (KPVCs)

Identifying KPVCs and their key structural gaps, barriers, and linking the supply side with the demand side.





3. Value chain visions:

For each KPVC there are 'grounded visions' which can link general goals to practical ways forward (pathways).

4. Socio-technical enablers

For each pathway, there is a menu of 3-4 combined actions or 'enablers'.

5. Value chain pathways

Mapped out in each of the 'social systems' (business, policy, and community) and 'technical systems' (technology, industry, and infrastructure).



2. Scenarios framework

GLOBALLY INTEGRATED CONTEXT



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Full scale circular society and globally integrated circular economy

Circular society in a local and isolated circular economy



3. A preferred vision statement for Ukraine's CE transformation in 10+ years

- \succ Ukraine fully embraces the Circular Economy (CE) approach, encompassing the entire society and economy.
- \succ The country successfully transitions to a prosperous state with a restored economy.
- \succ The government allocates significant resources to support circular economy initiatives, taking steps towards the adoption of the EU framework and global value chain integration.
- \succ The full circular economy approach helps the country to align with the principles of using fewer materials, extending the lifespan of products, regenerating resources, and maximizing material reuse.
- \succ This enables the transition to a high value, open and sustainable economy.





CAPACITIES' for CE-UKRAINE TRANSFORMATION







PRIORITY 'ENABLERS' & HORIZONS for CE-UKRAINE



Extended producer responsibility Zero-waste construction materials Collaborative circular standards and regulations Reverse logistic hubs for re-use and recycling Circular literacy in homes and workplaces Zero-waste water systems Digital supply chain integration Socio-eco-innovation systems Industrial symbiosis Innovation for lifetime products Strategic circular procurement partnerships Community/local circular platforms Industrial cross-integration Circular socio-ecological investment Collaborative socio-eco-economy systems Social welfare circular platforms Service & leasing models Adaptive-collaborative governance communities of interest Service value constellations





KEY PRODUCTS VALUE CHAINS (KPVCs)

- . **Constructions**: from primary materials to completed buildings, fittings and components: and then maintenance, conversion, renovation and end-of-life demolitions: the circularity is a question where the 'product' has a very long life.
- Food products: from primary inputs to agriculture, to manufacturing and distribution, to consumption by households and catering.
- **Electronics & ICT**: from primary critical raw materials, to manufacture and distribution: mainly a globalized value chain with very rapid innovation.

*Plastic & packaging: two inter-connected systems, which are embedded in all the KPVCs, with potential for re-use & recycling.

*Wastes: a variety of inter-connected systems, which are embedded in all KPVCs, with a rapid transition towards 'resource management'.





CONSTRUCTIONS – CONTEXT

Scope: from primary materials, to manufacture of components, assembly on site into completed buildings, with fittings and systems: and then maintenance, conversion, renovation and end-of-life demolitions.

Supply side

- . 10m+ tonnes of post-war construction waste
- . Heavy damage to basic infrastructure
- . Need for international investors for rebuilding $_{\scriptscriptstyle 19}$

Demand side

- Major renewal of housing & building stock needed, up to modern standards
- Market disruption, with over 6 million displaced / migrated / veterans
- Public organizations lack access to capital funding

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Key principles:

- a) Resource recirculation: re-use, recycling, recovery etc. of the materials used in existing construction;
- b) Resource efficiencies: design for optimum performance of building materials & components;
- c) Resource utilization: building / accommodation re-use & extended product life Source: Joe Ravetz

EXAMPLE CIRCULARITY MAPPING - 'CONSTRUCTIONS'



EXAMPLE PATHWAY MAPPING - 'CONSTRUCTIONS'







'CONSTRUCTIONS' - PATHWAYS

Construction resources pathway - works on the **supply** side, for transformation of materials resource efficiency, waste minimization and recycling on construction sites: and for post-life buildings and components, re-use and recycling. This depends on upskilling and co-production across the whole construction industry.

Construction innovation pathway - advanced technology and infrastructures: with full digitalization, product identity, alignment with EU research ecosystems. Innovations such as biomaterial structures, with design for re-use, disassembly and re-manufacturing of materials, components, fittings, furnishings.

needed.

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 Construction procurement pathway: on the **demand** side, this sees government leading strategic partnerships of real estate clients, construction firms, RTD bodies, and civil society, to drive up standards and mobilize investment for the infrastructure



'CONSTRUCTIONS' – RECOMMENDATINS

- Horizon 1 (1-5 years): Establishing new building regulations and circular EPR schemes, which considers promoting creative start-ups for circular design.
- Horizon 2 (5-10 years): Launching public procurement for circular materials and designs, considering technological advances in design and production of constructions.

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• Horizon 3 (10 and above years): Defining and set up public finance and loan schemes for reuse and recycling of constructions material.





EU4Environment Green Economy in Eastern Partner Countries CIRCULAR ECONOMY & 'SOCIO-TECHNICAL SYSTEMS'

- **Business-finance** from 'product' to 'service':
- Policy-governance from 'regulation' to 'partnership':
- **Social-community** from 'consumers' to 'citizens':
- Design-technology*innovation* – from 'products' to 'value chains':
- *Eco-industry* from 'resource efficiency' to 'circularity':
- Urban infrastructure from 'waste' to



GOVERNANCE: strategic partnerships, intelligent

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regulation, procurement

URBAN & **INFRASTRUCTURE:**

regenerative cycles of assets & resources

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SOCIAL-**COMMUNITY:**

social livelihoods & enterprises, public awareness & education

ECOSYSTEMS & RESOURCES: Regeneration & recirculation, local / regional / global

Source: Joe Ravetz



NEXT STEPS

...following through with the 'wider-deeper-further' approach.

- a) Set up a wider 'CE ecosystem' of actors / stakeholders, for co-innovation and co-production - a connected set of networks, skills sharing, technology transfer and knowledge exchange.
- Build capacity for a deeper 'CE value-system' which integrates technologies and markets b) with other social, cultural and ecological values, e.g. cooperative enterprise, regenerative farming, civil society renewal. 25
- Explore the further 'CE transformation' which connects short-term problems with longer C) term horizon 3 agendas: start with the most 'mission critical' issues.





#	Problem to be addressed	Proposal
1	Significant gaps in Ukraine's mechanisms for tracking progress in the Circular Economy (CE) compared to the EU's comprehensive Circular Economy Indicators.	Evaluate Ukraine's Circular Economy Conduct capacity methodologies, ar
2	The amount of construction waste is ever growing. The lack of a streamlined method to sort and separate materials and repurpose war debris	Design and impler construction wast programs to impro environmental ris
3	Ukraine is on the receiving end of post-consumer use textiles that are being exported to Ukraine . Local stakeholders lack the know-how for processing such materials which mainly end up in landfills.	Design and impler consumer textiles Provide capacity-k efficiently.
4	Financial incentives are necessary for a circular economy to encourage investment in sustainable practices, spur innovation, and drive the transition towards a resource- efficient economic model.	Provide mentoring enhance understa practices
5	Support regional administrations to develop regional plans for waste management, including related sectoral legislation.	Develop and refin Provide mentoring administrations

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- s existing monitoring mechanisms related to the
- building activities and improve data collection nd align with EU Standards
- ment comprehensive policies to streamline ce management, and provide capacity building ove recycling processes and mitigate ks
- ment policies to regulate the management of post-
- building programs to manage textile waste
- g and guidance to relevant stakeholders to anding of policies that incentivize circular economy
- e sector-specific legislation for priority sectors g and technical assistance to regional



WORKING REPORTS PRODUCED FROM THE EXPLORATORY FORESIGHT EXERCISE



- Report 1: Scoping the 'Circular Future Ukraine'
- Report 2: Future Scenarios for CE Development in Ukraine
 - > <u>Survey Scenarios</u> of CE development in Ukraine
- Report 3: Visioning the 'Circular Future Ukraine'
- Report 4: Transformation Pathways
 - --> Survey on Pathways of CE development in Ukraine
- Final Report 5: Towards the Circular Economy Ukraine





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86% OF RESPONDENTS PREFER GLOBAL CIRCULAR SOCIETY AS UKRAINE'S VISION FOR THE NEXT TEN YEARS





Thank you for your attention! Дякую за увагу!

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