



Towards the Circular Economy in **Ukraine**

PLASTICS AND PACKAGING





OVERVIEW

Every day the challenge of global plastics grows, with waste and pollution found in every part of the natural world – and packaging is by far the biggest part of this.

The plastics and packaging value chain is a cross-cutting system of many materials, products, and services.

Overall, the scope includes packaging and containers in many shapes and forms, from plastic, paper, organic, glass, metal and other materials. 'Plastics' then includes a vast range of synthetic materials and specialized polymers, with applications in every branch of production.

Which are the opportunities?

On the supply and production side, increasing automation, platform economics, long distance logistics and product quality assurance, all demand more sophisticated packaging. This also drives continuous innovation in plastics materials and components, and so the catalogue of synthetics and polymers grows, well beyond the scope of testing or regulation.

On the demand side, almost every production system now relies on packaging, to ensure food safety, logistic services, product quality and general convenience. There was a trend towards plastic and away from glass, paper-based, metal or other materials. Circular type policies emerge, but often lack investment, legislation, skills, facilities, and business and investment interest.

Ukraine's plastic waste sector is at the early stages, with 180,000 tonnes of polymer waste recycled. Just 20 enterprises for instance, now recycle polyethylene terephthalate (PET) containers into secondary materials: there is much potential for local recycling, to mitigate import dependency and build the national industry.



CIRCULARITY PATHWAYS

These pathways show a broad combination of actions from all stakeholders, starting from now towards a **‘future horizon’ of 10-25 years**.



‘What goes around comes around’ pathway

The challenge of plastics in packaging calls for new synergies between manufacturers, distributors, retailers, consumers, waste managers and policy-makers. This pathway starts on the producer side, with EPR and EPL principles, and bridges the current gaps in investment and legislation with new forms of valuation for plastic recycling activities. The development of recyclable packaging, on supply and demand sides, depends on strategic partnerships for

procurement and innovation, for both ‘business to consumer’ (B2C), and ‘business to business’ (B2B) operations.

With the cooperation of financial institutions, government or ministries and international organizations, a new framework of common circular standards and regulations can be developed. An adaptive management approach can then build communities of interest, for larger-scale investments in the plastics and packaging circularity.



‘Packaging for life’ pathway

On the household and consumer side, it starts with ‘circular literacy’ for education and skills for home and work, to address the gaps in social responsibility and environmental awareness. This can be supported with circular ‘resource hubs’ for responsible use of recyclable packaging containers.

Longer term this trend points towards a ‘reverse logistics’ transformation, from disposable packaging towards fully re-usable, repairable and recyclable systems. Retail and distribution activities will be at the front of this transition, with food shops as the first point of contact. Social enterprises can host practical re-use and recycling based on EPR and EPL principles, to internalize the external costs of managing plastic waste.



'Plastics for life' pathway

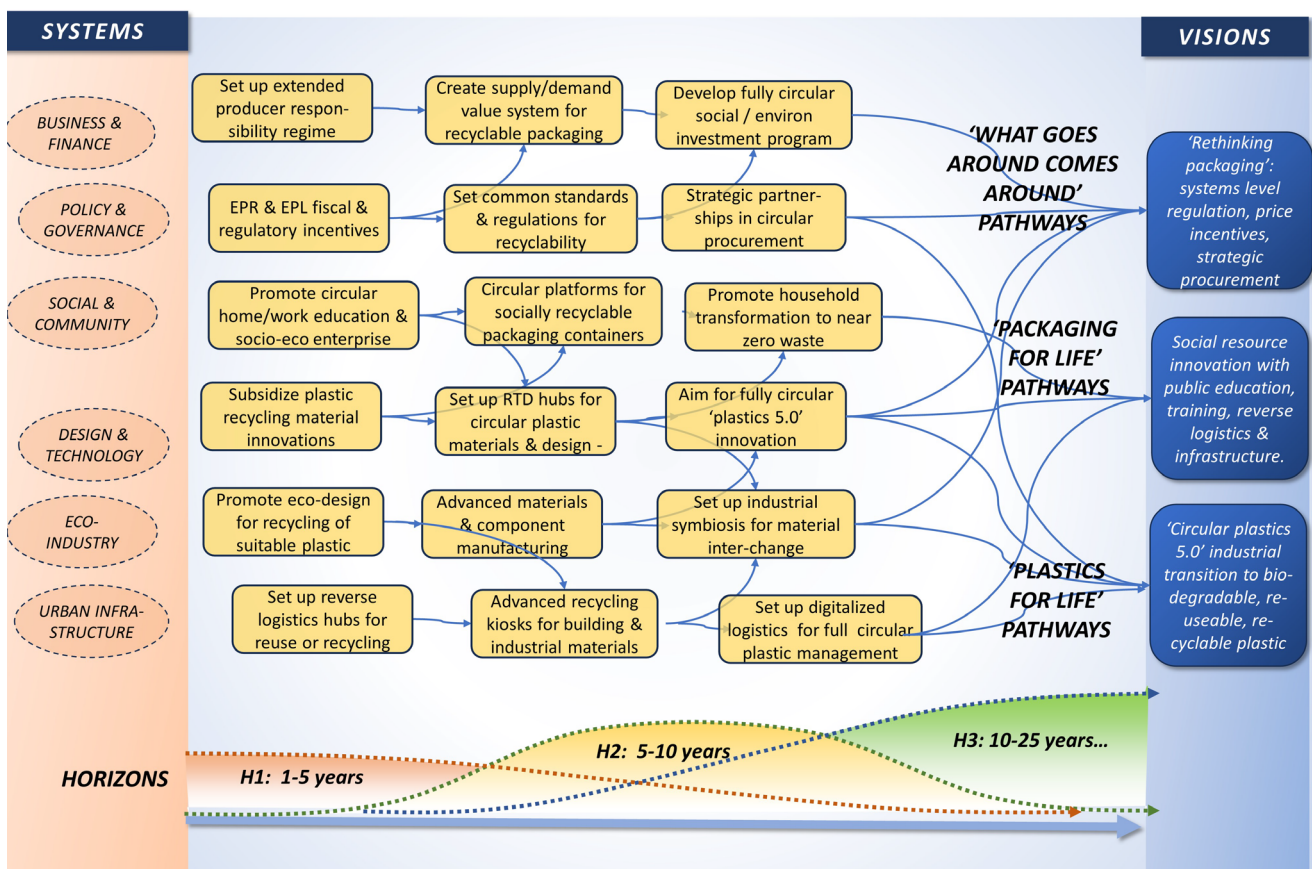
Within the highly technical and complex world of polymer science and its industrial applications, the first priority is for eco-innovation and design, with the overall aim of full recycling or bio-degradability of materials in use.

Overall, this trend points towards the principles of industrial symbiosis, where materials can be shared or exchanged between different sectors, and one firm's waste is another's raw material.

This depends on how integrated supply chains can be organized, beyond the barriers of conventional market competition. Such efforts call the government to lead the new partnerships between technology innovation, industrial producers, infrastructure, consumer and civil society stakeholders.

PLASTICS & PACKAGING – PATHWAY MAPPING

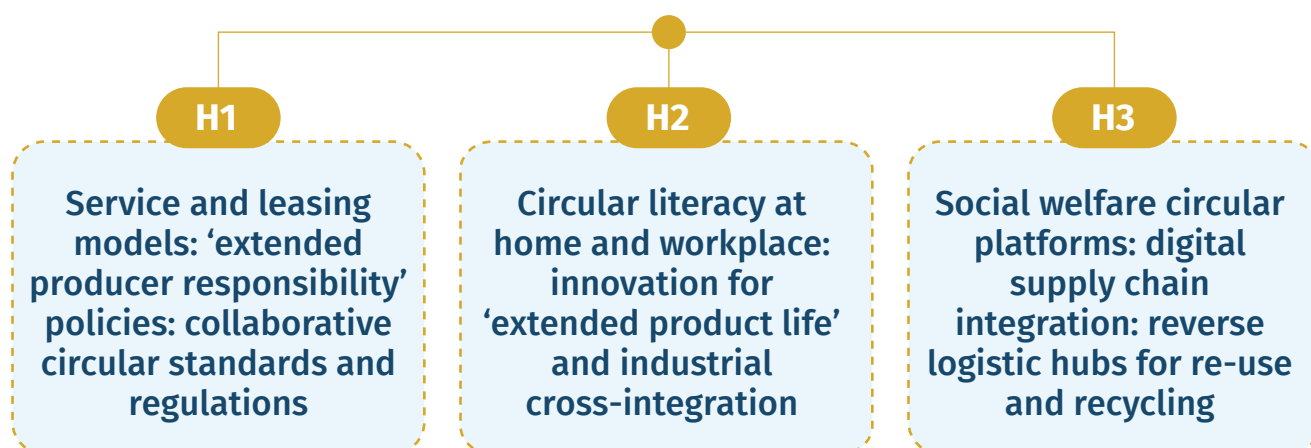
Outline of pathways, from social / technical systems, to the KPVC 'visions'. (Source: JRA)





When to start?

The longer view can be summarized with the **3-horizon perspective**:



Summary of three horizons in the plastics and packaging circularity

PLASTICS and PACKAGING	Horizon 1: 1-5 years	Horizon 2: 5-10 years	Horizon 3: 10-25 years
Business	Set up extended producer responsibility regime	Create supply and demand value system for recyclable packaging	Develop fully circular social and environment investment programme
Governance	EPR and EPL fiscal and regulatory incentives	Set common standards and regulations for recyclability	Strategic partnerships in circular procurement
Social	Promote circular home/work education and socio-eco enterprise	Circular platforms for socially recyclable packaging containers	Promote household transformation to near zero waste
Technology	Subsidize plastic recycling material innovations	Set up RTD hubs for circular plastic materials and design	Aim for fully circular 'plastics-Industry 5.0' innovation
Industry	Promote eco-design for recycling of suitable plastic	Advanced materials and component manufacturing	Set up industrial symbiosis for material exchange and joint processing
Infrastructure	Set up reverse logistics hubs for reuse or recycling	Advanced recycling kiosks for building and industrial materials	Set up digitalized logistics for full circular plastic management

CIRCULARITY IN ACTION

Here are some examples from forward looking enterprises: from circular business models in packaging, to specialist recycling, new generation glass, and a national circular plastic policy.



Return of production waste to a cardboard and paper manufacturing plant

Such waste, about 20% of the production total, is collected and returned to the paper mill by firms, which in return received new products and materials. With such symbiosis each company benefits. Each year the enterprises handed 7-8,000 tonnes of paper waste back to the paper mill and received in return almost 1,000 tonnes of new products – a great example of near-zero waste and the circular packaging economy.



Tetra Pak packaging recycling

Tetra Pak packaging consists of paper, polyethylene and film, taking hundreds of years to decompose in a landfill. This mill, so far unique in Ukraine, breaks down the cartons into fibres, which then produces 500 tonnes per month of paper, kraft paper, or newsprint. The mill also has a long term partner in the Ranok Publishing House, which prints half its products on recycled paper from the mill. The mill also produces 4,000 tonnes per year of high-quality poly-aluminium granulate, used as an additive for polymer sand products (paving stones, manhole covers, gutters) and road surfaces.



Producing a new generation of returnable glass bottles

Glass is one of the most sustainable packaging materials, but normally is lacking in lightness and strength. Vetropack provides a unique solution: Echovai is a particularly durable glass bottle, which could revolutionise the market, reducing weight by 30% and CO₂ by 25%. The bottles are also stronger and more resistant to wear, so after many cycles most Echovai bottles can still be used as new.



Plastics circular economy policy

Nearly 40 countries are currently trying to limit or ban the use of polyethylene and other types of plastic. The Verkhovna Rada of Ukraine passed in 2021 a law that bans the distribution of certain types of plastic bags in Ukraine.

Before that each person used an average of 500 plastic bags per year for 20 minutes, which then take up to 400 years to decompose. Shifting from free bags to biodegradable is just a first step. A 'circular packaging culture' starts to emerge as Ukrainians cut down 'paid-for' bags by 90% and double the use of biodegradable alternatives. This shows how the circular packaging economy can be achieved with public support and motivation.





PLASTICS AND PACKAGING CIRCULARITY, NEXT STEPS

BUSINESS AND FINANCE

For business and finance, the agenda focuses on new business models and logistic systems for packaging reduction, re-use and recycling. Alternatives to plastic may take time to establish along the value chains and need greater cooperation between firms and technology providers.

GOVERNMENT AND POLICY

For government and policy, the public sector should lead the way, with coordinated systems of circular packaging, via tax, subsidy, regulation, standards and procurement. Public-private partnerships are needed for the capacity-building, value chain coordination and procurement investment, for alternative logistics.

CIVIC SOCIETY

For civil society, there is rapid innovation on social awareness, and many forms of socio-eco-community enterprise for packaging reduction, re-use, re-distribution, recycling. The challenge then is how to scale up from the niches to the mainstream.

DESIGN, TECHNOLOGY AND INNOVATION

Design, technology and innovation systems are already moving on product design and supply chain innovation, for packaging dis-assembly, re-use, reduce and recycling.

URBAN INFRASTRUCTURE

Meanwhile new forms of urban infrastructure are needed for the retrofit of housing, workplaces and industrial areas, to support and enable the re-use and recycling of all forms of packaging and plastic waste.

Overall, Ukraine at this critical moment has immense potential and huge resources, for the transformation towards a more efficient, sustainable, high value plastics and packaging.





WHAT IS A CIRCULAR ECONOMY?

UNIDO defines circular economy as an 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.

This booklet is one of six publications dedicated to 'Key Product Value Chains' reviewed in the Exploratory Foresight Study: constructions, food products, electronics & ICT, textiles, plastics and packaging, and waste management.

Case studies are based on the National Circular Economy Case Studies and are available at: <http://www.recpc.org/recpc-case-studies-en/>

Examples from other countries are from the <https://circulareconomy.europa.eu/platform/en/good-practices>

For more information about the **UNIDO Green Recovery Programme for Ukraine** please visit:

<https://www.unido.org/green-recovery-vision-ukraine>

Exploratory Strategic Foresight for Circular Economy in Ukraine: Final report | <https://shorturl.at/tsy63>

Circular Economy for Industrial Development in Ukraine: Baseline Study | <https://shorturl.at/DHscb>

UNIDO Online Training on Circular Economy in Ukraine | <https://shorturl.at/qfv4S>

More about Circular Economy in Ukraine is available at the **RECP Centre** page at

<http://www.recpc.org/circular-economy/>

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