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Harnessing Sustainable Consumption and Production (SCP) and Circular Economy (CE) Opportunities to Achieve Higher Climate Ambition and Green Growth in Uzbekistan

White Paper

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LIST OF ACRONYMS AND ABBREVIATIONS

3Rs	Reduce, reuse, recycle
ADB	Asian Development Bank
CAREC	Central Asia Regional Economic Cooperation (CAREC) Program
CE	Circular economy
CMUR	Circular material use rate
COP	Conference of the Parties/Conférence des Parties is the supreme governing body of an international convention (treaty)
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
EU	European Union
EU CEAP	European Union Comprehensive Economic Partnership Agreement
EUD	European Union Delegation
GDP	Gross domestic product
GHG	Greenhouse gas
GST	Global Stocktake
IEA	International Energy Agency
IFIs	International financial institutions
IPCC AR6	Intergovernmental Panel on Climate Change, Sixth Assessment Report
IPCC	Intergovernmental Panel on Climate Change
IPPU	Industrial processes and product use
IRP	International Resource Panel
LCA	Life-cycle assessment
LT-LEDS	Long-term low emission development strategies
MDB	Multilateral Development Bank
MFA	Material flow analysis
MRV	Measurement, reporting and verification
NAMA	Nationally Appropriate Mitigation Action
NAP	National Adaptation Plan
NDC, NDCs	Nationally Determined Contributions
PSC	(SWITCH-Asia) Policy Support Component
SB	Subsidiary body
SCP	Sustainable consumption and production
SDGs	United Nations Sustainable Development Goals
TA	Technical Advisory
TNAs	Technology Needs Assessments
UNECE	United Nations Economic Commission for Europe
UNFCCC	United Nations Framework Convention on Climate Change
UNEP 10YFP	10-Year Framework of Programmes on Sustainable Consumption and Production (10YFP)

1. EXECUTIVE SUMMARY

The global community faces an interconnected triple planetary crisis – climate change, biodiversity loss, and environmental pollution, driven overwhelmingly by unsustainable patterns of consumption and production. The extraction and processing of material resources alone account for over 55% of global greenhouse gas (GHG) emissions and more than 60% when land-use change is included. In this context, the strategic integration of Sustainable Consumption and Production (SCP) and Circular Economy (CE) principles into climate policy frameworks has emerged not merely as an environmental imperative but as a foundational lever for achieving higher climate ambition, enhancing resource efficiency, and unlocking green growth. The European Union's SWITCH-Asia Programme, through its Policy Support Component (PSC), has been at the forefront of supporting countries across Central Asia and beyond to harness these synergies, aligning with the EU Green Deal and Global Gateway objectives.

This White Paper, developed under a regional Technical Advisory (TA) covering Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan, explores the opportunities to capitalise on the synergies between SCP, CE, green growth, and climate ambition. The TA was designed to assess the integration of SCP and CE into Nationally Determined Contributions (NDCs) and Long-Term Low Emission Development Strategies (LT-LEDS) in Central Asia, with a view to strengthening policy coherence, building institutional capacity, and identifying actionable pathways for scaling resource-efficient, low-waste development.

The SCP-CE-Climate nexus: A strategic imperative

The nexus between climate change and material resource management extends far beyond mitigation. While the potential for CE to reduce emissions through material efficiency, recycling, and waste valorisation is substantial, its role in adaptation and resilience-building is equally critical. The majority of adaptation actions – from climate-resilient infrastructure and water-retention systems to flood defences and reinforced transport corridors – are inherently material-intensive. Without integrating SCP and CE principles, such investments risk generating significant embodied emissions and exacerbating resource depletion, potentially offsetting mitigation gains elsewhere. Conversely, higher material-resource efficiency through circular design, reuse, and recycling can significantly enhance the sustainability and cost-effectiveness of adaptation measures, ensuring that resilience-building does not come at the expense of long-term emission-reduction goals.

Globally, the recognition of SCP and CE within climate policy is gaining momentum. The 2025 NDC 3.0 submissions marked a turning point, with an increasing number of countries embedding CE principles across sectors such as industry, agrifood systems, and construction moving beyond waste-management-only approaches. Vietnam, Thailand, and Sri Lanka have demonstrated how CE can serve as a cross-cutting element in NDCs, while in Central Asia, Kazakhstan and Uzbekistan have explicitly framed CE as a driver of sustainable economic growth and climate mitigation. This evolving landscape underscores a growing understanding that decoupling economic growth from resource use is not only compatible with climate ambition but essential to achieving it.

Uzbekistan: Aligning climate ambition with green growth

Uzbekistan occupies a strong position in this regional and global transition. As a dynamic, resource-intensive economy with a stated goal of achieving upper-middle-income status by 2030, the country faces a dual challenge: sustaining robust economic growth while confronting acute climate vulnerabilities, including water scarcity, heat stress, land degradation, and the legacy of the Aral Sea crisis. The government's response has been increasingly forward-looking, as reflected in the 'Uzbekistan-2030' Strategy and the Green Economy Transition Concept, both of which position the shift to a green and circular economy as a national priority.

Uzbekistan's NDC 3.0, submitted in 2025, shows a significant advancement in this direction. The NDC commits to a 50% reduction in GHG emissions intensity per unit of GDP by 2035 compared to 2010 levels, a formulation that explicitly links emission reduction to economic growth. This approach recognises that the

country's development pathway cannot be a simple extension of past resource-intensive models. Instead, it signals a strategic intent to modernise industry, improve energy and material efficiency, and transition toward a more competitive, value-added economy. The NDC embeds CE principles as a cross-cutting direction, with concrete references to the use of secondary and recycled resources in industry, the modernisation of waste management systems, and the establishment of a dedicated Waste Management and Circular Economy Development Agency. SCP is similarly reflected through alignment with SDG 12 and repeated references to resource-saving technologies across energy, agriculture, and industrial sectors.

Despite this solid foundation, the integration of SCP and CE in Uzbekistan's climate policy remains partial. The NDC lacks quantified indicators for circularity, such as a Circular Material Use Rate (CMUR), and does not yet provide a full sector-by-sector circular transition roadmap. The focus remains predominantly on supply-side industrial measures, with less emphasis on consumption patterns or demand-side interventions. Moreover, the link between CE measures and the NDC's overall mitigation accounting is not yet fully articulated. These gaps present clear opportunities for further policy development and operationalisation.

Finance as a common denominator: Catalysing the transition

The ambition embedded in Uzbekistan's NDC 3.0 and the forthcoming LT-LEDS cannot be realised without a fundamental step-change in investment. Finance serves as the common denominator that will determine whether SCP and CE principles remain aspirational or become transformative. The global financial architecture is increasingly aligned with the goals of the Paris Agreement, with Multilateral Development Banks (MDBs) – including the World Bank, EBRD, ADB, and EIB – committing to Paris-aligned investment portfolios. These institutions are increasingly recognising that CE solutions offer cost-effective, scalable pathways to reduce emissions while delivering adaptation co-benefits, job creation, and enhanced competitiveness.

Uzbekistan is well-positioned to capture these flows. The country's explicit framing of CE as a driver of green growth, its ongoing industrial modernisation, and its existing policy infrastructure – including eco-industrial zones and green mortgage programmes – provide a strong foundation for developing bankable CE projects. Strategic blended finance, combining catalytic public or philanthropic capital with commercial investment, offers a powerful instrument to bridge the gap between high-potential circular opportunities and private sector risk-return expectations. Low-hanging fruit sectors for such interventions include plastics recycling and secondary materials markets, energy-efficient and circular buildings, circular agriculture and bio-energy, and industrial symbiosis hubs. By establishing a dedicated Circular Economy and Climate Finance Task Force, Uzbekistan can systematically structure and scale these interventions, ensuring that public resources are used to leverage maximum private capital.

Regional collaboration as a multiplier

Uzbekistan's efforts can be significantly amplified through active engagement in regional cooperation frameworks. Central Asia's shared water systems, energy networks, and value chains make a coordinated approach to circularity both a necessity and a strategic opportunity. The upcoming Central Asia Regional Collaboration Framework for Circular Economy represents a landmark initiative that can harmonise policies, pool resources, and accelerate the transition toward a circular and climate-resilient regional economy. By championing this framework, Uzbekistan can advocate for common standards, facilitate cross-border industrial symbiosis, and access larger-scale, multi-country financing packages from MDBs and climate funds that prioritise regional public goods.

From strategic intent to operational leadership

Uzbekistan has laid a credible foundation by integrating SCP and CE principles into its national development and climate strategies. The country's NDC 3.0 articulates a clear vision of green growth linked to emission reduction, and its policy landscape reflects a growing recognition that resource efficiency is central to long-term competitiveness and resilience. The opportunity now lies in moving from strategic intent to large-scale, operational implementation.

This transition requires a concerted focus on three interconnected pillars:

1. catalysing market transformation in high-potential sectors such as construction, agrifood, and textiles through targeted policies, standards, and incentives,
2. strengthening enabling frameworks by expanding the mandate of the CE Agency, developing a robust MRV framework for circularity, and embedding CE criteria into climate finance architecture, and
3. aligning long-term planning by anchoring SCP and CE as central pillars of the LT-LEDS and investing in institutional capacity and human capital.

Crucially, the mobilisation of finance – strategically aligned with MDB Paris-alignment pledges and deployed through blended finance instruments – will determine the pace and scale of this transition. By systematically building a bankable pipeline of CE projects, leveraging regional collaboration, and embedding circularity into its investment strategy, Uzbekistan can transform its climate ambitions into tangible outcomes. In doing so, the country can not only meet its NDC targets but also establish itself as a regional leader in harnessing the power of the circular economy for sustainable, inclusive, and climate-resilient green growth.

2. INTRODUCTION

2.1. The European Union's SWITCH-Asia Programme

Through the European Union Green Deal and Global Gateway, the EU is committed to supporting the transition of countries to a low-carbon, resource-efficient and circular economy (CE) while promoting sustainable production and consumption patterns. As part of this engagement, the SWITCH-Asia Policy. The Policy Support Component (PSC) aims to enhance SCP progress through scaling up and mainstreaming SCP policy in 42 countries, spanning from the Middle East, to Central Asia, South Asia, East Asia, Southeast Asia and the Pacific ('target region'). The SWITCH-Asia PSC builds on the SWITCH-Asia programme's long and successful track record of providing technical assistance. It also links with the SWITCH-Asia grants component and connects with the programmes and priorities of the EU Delegations (EUDs). The programme's flexible and on-demand interventions, and its mandate to foster cooperation, strengthen networking and build a platform for exchange make the PSC well-positioned to meet the needs of the target region in addressing the triple planetary crises – climate change, biodiversity erosion, and environmental pollution – and meeting international commitments, including the SDGs and the Paris Agreement.

As a mode of operation, the PSC liaises with and advises national governments and regional organisations and networks in the target region. Typically, it engages countries in regional and multi-country approaches on scaling up SCP policy and implementation, delivering TAs, exchanging knowledge, and building the capacities of regional institutions. Key points of intervention are UN Sustainable Development Goal (SDG) 12 and providing progress and support to SCP-related goals; integrating SCP into the NDCs and climate- related actions by involving regional stakeholder engagement, with particular attention to business and industry representatives; and communicating on SCP.

This White Paper was developed as a part of an exploratory Technical Advisory (TA) called 'Sustainable Consumption and Production (SCP)-linked Nationally Determined Contributions (NDCs) and Long-Term Low Emission Development Strategies (LT-LEDS) in Central Asia – Identifying opportunities to capitalise synergies between SCP, Circular Economy, Green Growth and Climate Ambition.' The TA has been carried out as a Regional TA covering five Central Asian countries: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.

2.2. Introduction to the Technical Advisory (TA)

The nexus between climate change and sustainable consumption and production

Unsustainable consumption and production patterns are now widely recognised as the main drivers of the three interlinked planetary crises: climate change, biodiversity erosion, and environmental pollution. Recent assessments show that strategic shifts toward SCP and circular-economy (CE) approaches can substantially reduce global greenhouse gas (GHG) emissions through both directly and indirectly, while simultaneously advancing sustainable development and resilience. The Global Resources Outlook 2024 by the International Resource Panel (IRP) underscores that the extraction and processing of material resources – fossil fuels, minerals, non-metallic minerals, and biomass – account for over 55% of global GHG emissions and about 40% of particulate-matter-related health impacts. When land-use change is included, the climate impact rises to more than 60%, with biomass (agricultural crops and forestry) contributing the largest share (around 28%), followed by fossil fuels (18%) and combined non-metallic minerals and metals (17%). Biomass-related land-use change also drives over 90% of biodiversity loss and water-stress impacts linked to resource extraction[1].

These findings highlight that material-resource efficiency and sustainable resource management are not only central to mitigation but also to adaptation and resilience, since many adaptation actions themselves

1 https://wedocs.unep.org/items/3ec5991f-1ab2-4d54-9000-c9d3cee81d16

rely heavily on material-intensive infrastructure and technologies. Recent work by the SWITCH-Asia NDC-SCP integration initiative and related COP-29 dialogues emphasises that SCP and CE can help countries meet higher-ambition NDCs while reducing pressure on ecosystems and value-chain emissions. Despite this, the nexus between climate change and SCP remains under-mainstreamed in global climate policy frameworks, even though the Paris Agreement and successive NDC cycles offer a strategic entry point for integrating SCP and CE into both mitigation and adaptation planning.

Material resources play a significant yet often overlooked role in climate change adaptation and resilience-building. It is obvious that the majority of adaptation actions proposed by countries in their Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs) are physical or infrastructure-based interventions, such as upgraded drainage and water-retention systems, climate-resilient housing, flood barriers, seawalls, reinforced transport corridors, and nature-based solutions that still require substantial construction materials. These measures typically involve large quantities of concrete, steel, aggregates, and other non-renewable materials, whose extraction, processing, and transport are themselves major sources of GHG emissions and environmental degradation.

Because of this, higher material-resource efficiency – through better design, reuse, recycling, and circular-economy principles – can significantly enhance the overall efficiency and sustainability of adaptation and resilience actions. For example, using low-carbon concrete, recycled aggregates, modular and adaptable infrastructure, and extended lifetimes for built assets can reduce embodied emissions and resource demand while maintaining or improving protective capacity. Conversely, without integrating SCP and CE into adaptation planning, climate-resilience investments risk generating additional value-chain emissions that may partially or fully offset mitigation gains elsewhere in the economy. In other words, adaptation that is 'climate-smart' on the hazard side but 'resource-intensive' on the supply-side can undermine long-term emission-reduction prospects and exacerbate the triple planetary crisis.

There is a very strong link between climate change and material resources that extends far beyond emission reduction, encompassing adaptation and resilience-building as well. Despite this strong interdependence, the role of material resources in both mitigation and adaptation remains under-prioritised in mainstream climate policy, finance, and planning processes, with SCP and circular-economy considerations often treated as secondary rather than central to long-term climate resilience.

Nationally Determined Contributions (NDCs) and Long-term Low Emission Development Strategies (LT-LEDS)

The Nationally Determined Contribution (NDC) is the building block of the Paris Agreement, which was agreed at the 21st Conference of Parties (COP21) of the United Nations Framework Convention on Climate Change (UNFCCC). NDCs reflect the targets, actions and ambition of countries with regards to addressing climate change challenges, including emissions reductions, adaptation, and resilience building. All the parties of the Paris Agreement are supposed to update their NDC progressively every five years in order to achieve the overall objectives of the Agreement, which paved the way towards a bottom-up approach to a global agreement for solving global climate change challenges, plus an opportunity to integrate national priorities with climate actions. The NDC process has been recognised as an opportunity to address other global commitments in an integrated manner. The Sustainable Development Goals (SDGs), a landmark agreement in the 2030 global development agenda, has also recognised the Paris Agreement as a main contributor for achieving global climate change targets. The Paris Agreement opened a window of opportunity for countries to establish a development pathway that would contribute to multiple global and national commitments through a common process including monitoring, reporting and verification processes.

In 2025, Parties to the Paris Agreement were expected to submit their updated NDCs, commonly referred to as NDC 3.0, marking the third iteration of national climate pledges. This was a key opportunity for countries to better align their national development priorities with climate action, so that sustainable development and climate objectives would be more closely harmonised. Many Asia-Pacific and other developing countries have used this opportunity to strengthen the integration of SCP and circular-economy (CE) principles and actions into their NDCs, although at varying levels of ambition and detail. It should be noted that many Asia-Pacific and other developing countries have used this window of opportunity to strengthen the integration of SCP and circular-economy (CE) principles and actions into their NDCs, albeit at varying levels of ambition

and detail. It should be noted that some countries have explicitly adopted CE as one of the guiding principles in designing their NDCs. By doing so, they have created space to unlock the synergies and benefits of resource efficiency, emissions reduction, and resilience building. This also provides signals to the market and material-intensive industries to transform towards a high material efficiency status.

For example, Vietnam[2] has positioned CE approaches as a cross-cutting element in its updated NDC, particularly in agriculture and industrial value chains, going well beyond waste-management measures to promote circular agricultural models and the reuse of crop and animal residues, and to call for reduced reliance on chemical fertilisers. In Thailand,[3] SCP and CE-linked actions are embedded across energy-efficiency standards, sustainable food systems, and resource-efficient manufacturing, reflecting a broader systemic shift rather than isolated waste-related interventions. Sri Lanka's NDC 3.0 [4] has included CE as a fundamental component in their industrial processes and product use (IPPU) sector. In Central Asia, Kazakhstan's NDC 3.0[5] incorporates CE and SCP-linked measures across their energy, industry, agriculture, and waste-management sectors, positioning CE as an integral part of the country's mitigation and resource-efficiency strategy rather than as an isolated waste-management agenda. Uzbekistan's NDC 3.0[6] similarly embeds circular-economy principles as a cross-cutting element, explicitly framing CE development as a key driver of sustainable economic growth and climate mitigation, with SCP-related actions extending into energy efficiency, industrial modernisation, and sustainable agriculture. In the Asia-Pacific region, several countries have used SCP and CE policies, dialogues on NDC 3.0 and stakeholder consultations to make CE a main element in climate ambition pathways directly connect CE strategies to cutting emissions (mitigation), handling climate impacts (adaptation), and promoting sustainable ways to produce and use resources.

Long-term low-emission development strategies (LT-LEDS) are national roadmaps that outline how a country intends to transition towards a low-carbon, climate-resilient economy by mid-century, and they are usually aligned with the Paris Agreement goal of limiting global warming to well below 2 °C above pre-industrial levels (Article 2) and of achieving net-zero emissions in the second half of the century (Article 4). Under Article 4.19 of the Paris Agreement, Parties are invited to 'strive to formulate and communicate' LT-LEDS, which then serve as overarching frameworks to guide and harmonise short-term climate actions, such as Nationally Determined Contributions (NDCs), with long-term structural transformations in energy, land use, industry, and urban systems. By integrating climate objectives with broader sustainable-development priorities, LT-LEDS help countries mainstream climate action across sectoral policies, strengthen investment signals, and ensure that national climate strategies are coherent, ambitious, and resilient over time.[7]

LT-LEDS also offers a policy opportunity to mainstream SCP and CE principles into a country's climate and development agenda. Because LT-LEDS span several decades and cut across sectors, they allow governments to embed SCP and CE as cross-cutting pillars – rather than isolated projects – into energy, industry, agriculture, cities, and infrastructure planning, thereby aligning resource-efficient, low-waste development pathways with net-zero and resilience goals. Several countries already use their LT-LEDS to demonstrate this integration: for example, Bhutan's LT-LEDS emphasise sustainable resource use and low-waste development as part of a long-term decarbonisation vision, while Pakistan's LT-LEDS process explicitly links SCP-type measures, such as resource-efficient agriculture and industry, with emission-reduction scenarios and national-development planning. By integrating SCP and CE in LT-LEDS, countries can ensure that climate-action portfolios are not only carbon-efficient but also materially and socially sustainable over the long term.

Within most NDCs and LT-LEDS, recognition of SCP and CE has remained limited up to now but is clearly on an upward trajectory. Many countries initially framed CE-linked actions only within waste-management-related climate targets, but recent NDC 3.0 and LT-LEDS updates show that SCP and CE are increasingly being mainstreamed into broader sectors such as industry, buildings and construction, agrifood systems, and urban resilience, reflecting a more systemic understanding of material-resource-efficient development as a

2 https://unfccc.int/sites/default/files/NDC/2022-11/Viet%20Nam%20NDC%202022%20Update.pdf
3 https://unfccc.int/sites/default/files/2025-11/TH%20NDC%203.0.pdf
4 https://unfccc.int/sites/default/files/2025-09/Sri%20Lankas%20Nationally%20Determined%20Contributions%203.0%20%282026-2035%29%20submitted%2022.09.2025%20%281%29.pdf
5 https://unfccc.int/sites/default/files/2025-11/NDC_Kazakhstan%203.0%20eng.pdf
6 https://unfccc.int/sites/default/files/2025-11/Uzbekistan%20Third%20NDC.pdf
7 Long-term low-emission development strategies - Synthesis report by the UNFCCC secretariat, 2022 -https://unfccc.int/sites/default/files/resource/cma2022_08.pdf#:~:text=commitment%20to%20achieving%20the%20long%2Dterm%20temperature%20goal%20of%20the%20Paris%20Agreement

core climate-ambition lever. At the UNFCCC level, SCP and CE have not yet occupied a central place in formal negotiation themes such as mitigation accounting or transparency, but they have begun to feature more prominently in high-level discussions, especially during the first Global Stocktake (GST) and under the Sharm el-Sheikh mitigation-ambition work programme, where Parties and observers have highlighted the need to harness resource-efficiency and CE opportunities to close the emissions gap.

The IPCC Sixth Assessment Report emphasises that avoiding dangerous climate repercussions will require capitalising on all available mitigation and adaptation opportunities, including demand-side measures, resource efficiency, and systemic shifts in consumption and production patterns, thereby reinforcing the imperative of integrating SCP and CE into national climate strategies. In practice, however, SCP and CE remain mostly linked with climate mitigation targets and are still under-recognised within adaptation planning and National Adaptation Plans (NAPs), despite the fact that many adaptation actions such as resilient infrastructure, housing, and water-retention systems, are highly material-intensive and could benefit greatly from CE and resource-efficiency principles. It is hoped that, as countries refine their NDC 3.0 and LT-LEDS portfolios and deepen adaptation mainstreaming, SCP and CE will increasingly be recognised and operationalised within adaptation actions as well, helping to align resilience-building with sustainable resource use and long-term climate ambition.[8]

This SWITCH-Asia TA on SCP-linked NDCs and LT-LEDS in Central Asia to identify opportunities to capitalise synergies between SCP, CE, Green Growth and Climate Ambition in Central Asia has been designed precisely within this evolving policy landscape to support countries in systematically integrating SCP and CE principles into their climate ambition frameworks, including NDC 3.0 and LT-LEDS processes. The TA as a whole covered all Central Asian countries through regional-level policy assessments, mapping SCP and CE-related opportunities and gaps across national climate and development agendas. At the same time, it pursued more in-depth, locally grounded engagements in Kazakhstan, Kyrgyzstan, and Tajikistan, working closely with national institutions to strengthen policy coherence, identify concrete SCP and CE measures, and build institutional capacity for mainstreaming resource-efficient and low-waste development pathways into both mitigation and adaptation planning.

2.3. Objectives of the Technical Advisory

The TA has been strategically designed as an exploratory and scoping initiative to examine the integration of SCP into country climate commitments. The primary objectives are threefold:

- Identify the potential to integrate SCP and CE into climate ambitions including the NDCs and LT-LEDS in the Central Asian countries,
- Enhance local knowledge and capacities among the local actors for SCP and CE integration into NDC 3.0 and LT-LEDS through broader engagement and exchanges, and
- Provide on-demand technical assistance to design and develop sector specific SCP/CE related targets under NDC 3.0/LT-LEDS.

2.4. Methodology of the Technical Advisory

The TA was implemented as a scoping assessment aimed at exploring potential avenues for integrating SCP into the NDCs, LT-LEDS and other climate ambition strategies of Central Asian countries. The assessment was designed to gather the necessary information through two main processes: (i) a systematic review of relevant national policy documents related to SCP, climate change, and circular-economy (CE) priorities, and (ii) targeted consultations with key stakeholders, including government ministries, line agencies, research institutions, and civil-society organisations.

The TA covered all Central Asian countries through regional-level policy assessments, mapping SCP and CE-related opportunities and gaps across national climate and development agendas. In parallel,

8 Working Paper on the contribution of circular economy to climate change mitigation strategies. MedWaves, the UNEP/MAP Regional Activity Centre for SCP and ENT Environment and Management. Barcelona, 2023 - https://www.medwaves-centre.org/wp-content/uploads/2023/12/WP_Report_CircularEconomy_ClimateAction_DEF_compressed.pdf

the assessment pursued more in-depth, locally grounded engagements in Kazakhstan, Kyrgyzstan, and Tajikistan, where it worked closely with national institutions to strengthen policy coherence, identify concrete SCP and CE measures, and build institutional capacity for mainstreaming resource-efficient and low-waste development pathways into both mitigation and adaptation planning.

To complement the national-level work and obtain views from countries where national-level deep-dive engagement had not yet been set up – such as Uzbekistan – the TA also leveraged regional and international platforms to facilitate dialogue with climate-change and SCP/CE stakeholders. This included organising and participating in special sessions at the Central Asia Climate Change Conferences, SWITCH-Asia Annual Meetings, and side events and thematic sessions at UNFCCC Conference of the Parties (COP) and Subsidiary Body (SB) meetings, which provided opportunities to exchange experiences, validate findings, and align the recommendations of the TA with broader regional and global climate-policy debates.

2.5. Climate change landscape in Uzbekistan

Positioned at the crossroads of Central Asia, Uzbekistan is undergoing a critical phase in its development, increasingly shaped by the realities of global climate change. While its climate vulnerabilities differ from those of low-lying or coastal states, the country faces a distinct set of interconnected environmental and economic challenges. Uzbekistan's development trajectory is influenced by its role as a contributor to global greenhouse gas emissions, alongside its high exposure to climate impact such as water scarcity, heat stress, and land degradation. This situation is further conditioned by a historical legacy of environmental stress, including the Aral Sea crisis and intensive agricultural practices, which continue to shape contemporary debates and policy choices around resource management, SCP, and climate-resilient development.

Uzbekistan's climate profile is striking. As a doubly landlocked country with extensive arid and semi-arid zones, it is warming at a rate faster than the global average, with projections indicating a potential temperature increase of 2–3 °C by mid-century.[9] This warming is not a distant projection but an unfolding reality, driving a cascade of interrelated environmental and socio-economic stresses. The most visible symbol is the Aral Sea, once the world's fourth-largest lake and now largely reduced to a dust-prone basin, whose desiccation has altered local microclimates, degraded soils through salinisation, and severely affected surrounding communities.[10] This human-induced environmental disaster provides a stark backdrop to the intensifying natural threats posed by more frequent and severe heatwaves, prolonged droughts, and increasingly erratic precipitation patterns.[11]

Water scarcity is visibly the centre of Uzbekistan's climate challenge. The country is dependent on transboundary rivers fed by melting glaciers in the Pamir and Tien Shan mountains, and these glaciers are receding at an alarming pace. A precarious paradox has resulted: short-term increases in meltwater heighten flood risks, while the long-term depletion of these 'frozen reservoirs' threatens the very lifeline of the country's agriculture and cities. The World Bank has repeatedly warned that water stress could severely constrain Uzbekistan's economic ambitions, placing immense pressure on its cotton and wheat production, which account for a significant share of water use.[12]

The socio-economic consequences of climate change in Uzbekistan are severe. Agriculture, the core element of rural livelihoods, remains a key pillar of the national economy, but at the same time the sector is experiencing declining productivity as water shortages and soil salinisation intensify. In Tashkent and other urban centres, rising temperatures and expanding heat islands are increasingly compounded by air pollution, heightening risks to public health and the quality of life.[13] Uzbekistan's vulnerability reflects the interplay between climate exposure and economic structure. While the economy is rapidly modernising, it continues to depend heavily on energy-intensive sectors such as mining, metallurgy, and chemical production, and is still transitioning away from a legacy of fossil fuel-based power generation toward more diversified and

9 Government of the Republic of Uzbekistan. (2023). Third Nationally Determined Contribution (NDC) of the Republic of Uzbekistan under the Paris Agreement. UNFCCC. https://unfccc.int/sites/default/files/2025-11/Uzbekistan%20Third%20NDC.pdf
10 Asian Development Bank (ADB). (2020). Uzbekistan: Country Water Sector Assessment. ADB East Asia Department.
11 IPCC. (2022). Climate Change 2022: Impacts, Adaptation and Vulnerability. Chapter 10: Central Asia. Cambridge University Press.
12 World Bank. (2023). Uzbekistan Country Climate and Development Report (CCDR). World Bank Publications.
13 Ministry of Health of the Republic of Uzbekistan & WHO. (2020). Climate Change and Health: Country Profile – Uzbekistan.

sustainable energy pathways.[14]

Faced with these mounting challenges, Uzbekistan has made a significant shift toward climate awareness and policy reform. The government has moved beyond a focus on ecological recovery towards a more proactive, forward-looking vision of green development. This transformation is reflected in two key policy frameworks: the 'Uzbekistan-2030 Strategy', which positions the transition to a 'green' and 'circular' economy as a national priority, and the Green Economy Transition Concept, which provides a more detailed roadmap for integrating sustainability into sectoral planning.[15] On the international front, Uzbekistan has signalled its commitment through its updated NDC, pledging to reduce greenhouse gas emissions intensity per unit of GDP by 35% by 2030, thereby aligning its domestic reforms with broader climate-ambition goals.

Uzbekistan's evolving strategy increasingly acknowledges that traditional, siloed approaches are no longer sufficient to address the scale and complexity of the country's climate and development challenges. There is a growing recognition that resilience will not be achieved simply by building higher walls or more infrastructure, but by fundamentally rethinking how systems of production, consumption, and resource use are organised. In this context, the principles of SCP and CE are moving from abstract concepts to a practical and essential toolkit for climate action. Integrating SCP and CE offers a pathway to decouple economic growth from environmental degradation, using every drop of water, every unit of energy, and every tonne of material with greater efficiency and care. From modernising extensive irrigation networks and capturing methane emissions from landfills to promoting industrial symbiosis and resource-efficient manufacturing, SCP and CE are emerging as key drivers that can help Uzbekistan deliver on its climate pledges while safeguarding its long-term economic and environmental security.[16]

From a climate perspective, Uzbekistan's main economic drivers face not only increasing physical exposure but also transformational risks, as rising temperatures, water scarcity, and more frequent extreme-weather events threaten to reshape the structure and viability of key sectors. Agriculture, which contributes around 18–24% of GDP and supports a large share of the rural population, is highly vulnerable to reduced river flows, declining groundwater levels, and increased evaporation, all of which threaten irrigation-dependent crops such as cotton, wheat, and horticulture and raise the risk of lower yields and higher production costs. If these trends intensify, parts of the agricultural system may no longer be viable under current land-use and water-allocation patterns, potentially forcing large-scale shifts in cropping systems, rural livelihoods, and settlement patterns.

14 IEA. (2021). Uzbekistan Energy Profile. International Energy Agency.

15 Government of Uzbekistan, 2022. *Uzbekistan-2030 Strategy*; and (2019). Decree on the Green Economy Transition Concept until 2030.

16 UNECE, 2022. Innovation for Sustainable Development in Uzbekistan: A Policy Paper. United Nations Economic Commission for Europe.

3. INTEGRATING SCP AND CE INTO UZBEKISTAN'S DEVELOPMENT STRATEGY

3.1. Sustainable development challenges in Uzbekistan

Uzbekistan stands as one of Central Asia's most dynamic and ambitious economies, having embarked on a significant level of transformation since 2016. With noticeable market-oriented reforms, the country has formally set an objective of achieving upper-middle-income status by 2030, as articulated in its National Development Strategy 2022–2026 and related government planning documents. This growth trajectory is driven by strategic goals of economic diversification, industrial modernisation, and deeper integration into global value chains, supported by sustained macroeconomic reforms and rising foreign direct investment. However, this positive momentum is increasingly constrained by the growing misalignment between a resource-intensive growth model and the tightening constraints of planetary boundaries, including climate change, water scarcity, and land degradation.[17]

The economy of Uzbekistan remains heavily reliant on extractive industries, water-intensive agriculture, and energy-intensive manufacturing, a structure that amplifies both emissions and vulnerability to environmental shocks. World Bank and ADB analyses highlight that further expansion under this model would deepen pressure on water resources, increase greenhouse gas emissions, and risk locking in carbon-intensive infrastructure, even as global decarbonisation imperatives and regional climate events intensify.

Economically, Uzbekistan must manage the complex transition from state-dominated, subsidy-reliant sectors toward more competitive, green industries, balancing the need to attract investment in low-carbon technologies with the social risks of restructuring inefficient state-owned enterprises and potential job displacement. Environmentally, the very foundations of growth – water, energy, and arable land – are under severe stress from climate change and legacy mismanagement, threatening to cap future productivity and resilience. Socially, a young and rapidly urbanising population demands quality employment, improved public services, and better-quality infrastructure, placing additional pressure on already strained natural systems and urban technical systems. In this context, Uzbekistan's principal development challenge is no longer merely one of stimulating growth, but of fundamentally re-engineering its economic motor to be resilient, circular, and low-carbon, ensuring that impressive macroeconomic progress can translate into sustainable and inclusive well-being for the citizens.

Launched in January 2022, the **Uzbekistan-2030 Strategy** serves as the nation's definitive roadmap for achieving upper-middle-income status, articulating a clear vision for a modern, prosperous society based on the principles of equity and sustainability. This ambitious framework recognises that future prosperity cannot be a simple extension of past growth models. Instead, it posits that sustainable economic expansion must be fundamentally reconfigured to operate within pressing ecological boundaries, most notably the limits of the country's water and energy systems, while ensuring social inclusion. The strategy thus frames the nation's primary task as the decoupling of economic progress from resource depletion and environmental degradation, making the transition to a green economy a central pillar of its developmental agenda.

The strategy also identifies a set of interconnected challenges that define Uzbekistan's sustainable development landscape. Economically, it highlights the requirement to diversify beyond a reliance on raw material exports and state-led investment towards a more resilient, private sector-driven and value-added economy. Environmentally, it confronts the critical constraints of acute water scarcity, land degradation, and a carbon-intensive energy mix, recognising these as direct threats to long-term food, energy, and climate security. Socially, the strategy underscores the need to generate quality employment for a growing youth population and to mitigate regional disparities in opportunity and infrastructure. Ultimately, the Uzbekistan-2030 Strategy presents the nation's core challenge not as a lack of growth potential, but as the

17 The World Bank Group, 2023, Uzbekistan Climate and Development Report - https://documents1.worldbank.org/curated/en/099111423124532881/pdf/P179068-f452f1cd-1218-43ba-a34c-6922a1df0003.pdf

complex governance and financing endeavour of transforming its economic foundations to be inherently more efficient, circular, and equitable.

3.2. The SCP and CE Policy Landscape of Uzbekistan

Uzbekistan's SCP and CE policy landscape has evolved from a focus on environmental protection toward a more integrated, growth-oriented agenda that links resource efficiency with industrial modernisation, value-added manufacturing, and export diversification. Since the adoption of the Strategy for the Transition of the Republic of Uzbekistan to a Green Economy for 2019–2030, SCP and CE have been increasingly mainstreamed into national development and environmental frameworks, aligning with the Sustainable Development Goals (SDGs), the Paris Agreement, and regional cooperation initiatives including the SWITCH-Asia and the UNECE Environmental Performance Reviews support on SCP-CE agenda. Recent SCP-related policy work, including national SCP action plans, revisions of sectoral regulations, and targeted programmes in textiles and other manufacturing subsectors reflects efforts to embed resource-efficient and low-waste practices into the country's broader economic-growth trajectory, particularly in industries that drive value addition, job creation, and export earnings. At the same time, Uzbekistan's engagement with international frameworks and technical-assistance initiatives signals an emerging recognition that SCP and CE are not only environmental priorities but also strategic levers for enhancing the competitiveness, resilience, and sustainability of its manufacturing and export-oriented sectors.

Table 1 depicts the main policies, strategies and directives that highlights and frame SCP and CE aspects in Uzbekistan.

Table 1. Main SCP and CE policies, strategies and directives in Uzbekistan

Policy/strategy document	Primary objectives and coverage	Salient SCP/CE features
Presidential Decree No. UP-4477 'On the Strategy for the Transition of the Republic of Uzbekistan to a Green Economy for the Period 2022-2030'[18]	***Time frame*** – 2019-2030 To ensure sustainable economic development, reduce the negative impact on the environment and climate, and transition to a 'green' and CE model. ***Coverage*** - Economy-wide, with focus on energy, industry, agriculture, waste management, and water.	This is the main development policy document highlighting CE/SCP. It explicitly introduces circular economy (CE) principles within a national goal. Sets targets for: increasing resource productivity (GDP/resource use); recycling of industrial & municipal waste; reducing greenhouse gas emissions per unit of GDP. Establishes legal and institutional frameworks for CE principles. The strategy emphasises modernisation of industry toward more sustainable production patterns, including wateruse efficiency, cleaner production, and greening of publicinvestment criteria, which correspond closely to circulareconomy and SCP priorities.

18 https://policy.asiapacificenergy.org/sites/default/files/Strategy%20on%20the%20Transition%20of%20the%20Republic%20of%20the%20Republic%20of%20Uzbekistan%20to%20a%20%2522Green%2522%20Economy%20for%20the%20Period%202019%20-%202030%20%28RU%29.pdf

Policy/strategy document	Primary objectives and coverage	Salient SCP/CE features
Presidential Decree No. UP-5938 'On the National Sustainable Development Goals and Targets for the Period until 2030'[19]	***Timeframe:*** 2018 – 2030 To localise and achieve the UN Sustainable Development Goals (SDGs) within Uzbekistan's national context. ***Coverage:*** Cross-sectoral, encompassing social, economic, and environmental dimensions.	Primary SCP Framework. The decree formally establishes the national SDG framework and assigns responsibility for implementing Goals 7 (affordable and clean energy), 12 (responsible consumption and production), 13 (climate action), and 15 (life on land), all of which directly underpin SCP and CE priorities such as resource-efficient consumption, sustainable industrialisation, and low-waste management. It includes commitments to improve resource efficiency in consumption and production, reduce material-intensity of growth, and promote sustainable management of natural resources, which align closely with SCP-type objectives. At the same time, the decree's emphasis on integrating SDGs into sectoral strategies, including the Green Economy Transition Strategy and climaterelated planning, provides a crosscutting mandate for CE-style measures such as waste-minimisation, recycling, and industrial symbiosis, etc. within broader sustainable development and climate resilience agendas.
Law of the Republic of Uzbekistan No. ZRU-762 'On Waste' (2021)	***Timeframe:*** 2021 – ongoing ***Coverage:*** To regulate waste management activities, prevent negative environmental impacts, and promote the use of waste as secondary resources. The law's core objectives include preventing harm to human health and the environment, reducing waste generation, and ensuring the rational use of waste in economic activity	It is a legal instrument that signals for a shift away from linear 'take-make-dump' patterns toward more circular material-flow management. The law includes core principles of circularity from recycling, waste minimisation and secondary material usage perspective.
Presidential Decree No. UP-5691 'On Accelerated Measures to Improve the Waste Management System' (2020)	***Timeframe:*** 2020-2030	It is an operational Driver for Waste-Focused CE. The decree mandates a phased transition toward separate collection of household waste, including the introduction of recyclable and non-recyclable waste streams in residential areas, which is a core prerequisite for effective material recovery and circular-economy pathways. It highlights circularity with regards to only municipal waste.

19 https://uzbekistan.un.org/sites/default/files/2021-11/Brochure-en-ru-uz_0.pdf

Policy/strategy document	Primary objectives and coverage	Salient SCP/CE features
'Strategy for Innovative Development of the Republic of Uzbekistan for 2022-2026' (Approved by Presidential Decree UP-60)	***Timeframe:*** 2022-2026 To foster economic modernisation through digitalisation, innovation, and support for green technologies. ***Coverage:*** Industrial policy, manufacturing, technology, and research sectors.	The strategy creates enabling environment for SCP and CE by prioritising innovation, technology transfer, and modernisation across resource-intensive sectors. The strategy focuses on expanding innovative infrastructure such as technoparks, technology-transfer centres, clusters, and startup accelerators, and on increasing the share of innovatively active enterprises, particularly in agriculture, energy, construction, and manufacturing, which are central to Uzbekistan's material- and energy-intensive growth model. The strategy also emphasises on human-capital development, R&D, and private-sector-led innovation aligns with the need to transition from linear, input-intensive growth toward ***more knowledge- and innovation-driven, low-waste development pathways***, even though these linkages are framed in terms of technological modernisation rather than as an explicit SCP or CE strategy.

Beyond the main and cross-cutting policies and strategies, Uzbekistan has also developed a number of sectoral policy instruments that explicitly or implicitly reflect SCP and CE principles, as summarised in Table 2. These sectoral frameworks recognise resource-efficiency, waste-minimisation, and low-waste development objectives into key economic sectors such as industry, agriculture, energy, and urban services, reinforcing the integration of SCP and CE across the country's climate-resilient and green-growth agenda.

Table 2. Uzbekistan sectoral policy instruments reflecting SCP and CE principles (explicitly or implicitly)

Sectoral Policy/ Strategy Document	Primary objectives and coverage	Important features concerning SCP/CE
Presidential Decree No. UP-112 'On Additional Measures for the Accelerated Development of the Textile, Garment and Knitting Industry' (2022)	***Timeframe:*** *2022-2023* To increase value-added exports, introduce sustainable practices, and enhance global competitiveness of the textile sector. The decree aims to deepen the processing of domestic cotton, expand finished-product exports (fabrics, garments, knitwear), and attract international brands, which inherently pushes the sector toward more sophisticated, less input-intensive production chains. ***Coverage:*** Textile, garment, and knitwear production	UP-112 is one of the major sustainable industry policies. It mandates the transition to **internationally recognised eco-standards (OEKO-TEX, GOTS, GRS)**. Provides tax incentives for manufacturers using recycled materials and green technologies. Aims to create a **closed-loop system** by supporting the production of recycled polyester from PET waste. Directly promotes circular material flows and sustainable production. UP-112 supports cleaner production, better resource utilisation, and reduced waste along textile value chains, even if these objectives are framed primarily in terms of competitiveness and export growth rather than as an explicit SCP or CE policy.
Presidential Decree No. UP-6197 'On Additional Measures for the Development of Construction and Improvement of Urban Planning' (2023)	***Timeframe: 2023-2030*** To modernise construction with energy efficiency, innovation, and sustainable materials. The decree aims to deepen reforms in building and urban development, reduce bureaucratic barriers, and promote innovative, digital-enabled construction technologies, which support more efficient use of materials, energy, and land. ***Coverage:*** Building sector, urban planning.	Promotes Green Building & Sustainable Infrastructure. Introduces requirements for energy-efficient building codes. Provides incentives for using local and secondary (recycled) construction materials. Promotes 'green mortgages' for energy-efficient housing. Aims to reduce the resource intensity and life-cycle environmental impact of the built environment.
Decree of the Cabinet of Ministers No. 520 'On Measures to Organise the Activities of Industrial Zones on the Basis of 'Green Economy' Principles' (2022)	***Timeframe:*** *2022 – on going* To create eco-industrial zones that minimise environmental impact and optimise resource use. By requiring that industrial-zone infrastructure and services be designed to support cleaner production and lower environmental impact, the decree effectively promotes eco-industrial-zone principles such as industrial symbiosis, shared infrastructure, and reduced material-throughput. ***Coverage:*** Designated industrial zones (e.g. Jizzakh, Navoi, Angren)	Pilot for Industrial Symbiosis (Advanced CE). The decree mandates environmental standards, mandatory waste sorting, and the creation of shared waste processing facilities within zones. Encourages synergies between resident enterprises (e.g. using one factory's by-product as another's raw material). This is a direct application of CE principles at the cluster level. At the same time, the emphasis on attracting 'green' investment, improving environmental-compliance conditions, and aligning industrial-zone development with Uzbekistan's broader green-economy strategy positions SCP- and CE-style practices as integral to the country's industrial-modernisation and export-diversification agenda, even though they are framed in terms of 'green economy' rather than as a standalone SCP or CE policy.

3.3. Climate-change policy landscape of Uzbekistan

Uzbekistan is a party to the United Nations Framework Convention on Climate Change (UNFCCC) as one of the non-Annex I developing countries and a party to the Paris Agreement. Uzbekistan's climate policy landscape has undergone rapid evolution since 2019, aligning domestic reforms with Paris Agreement obligations through a set of policies and strategies that emphasise mitigation ambition, adaptation resilience, and green economic transition. The foundational 2019 Strategy for Transition to a Green Economy by 2030 (PP-4477) established economy-wide targets to double energy efficiency, achieve 25% renewable energy in the power mix, expand forest cover by 1 million hectares, and attain 25% municipal solid waste recycling, setting the stage for subsequent NDCs. The 2021 updated NDC (NDC2) elevated mitigation commitments to a 35% reduction in GHG emissions intensity per unit of GDP by 2030 (against levels of 2010 as the baseline), conditional on international support, while prioritising adaptation in water-stressed agriculture amid Aral Sea degradation and projected 20-30% precipitation declines by mid-century.[20]

Mitigation and long-term frameworks

Uzbekistan's NDC 3.0 commits to a 50% reduction in GHG emissions intensity per unit of GDP by 2035 compared to 2010 levels, covering all sectors without absolute cuts to support economic growth. The emission reduction ambition of Uzbekistan is directly connected to economic growth with sectoral measures including 54% renewable electricity share (25,000 MW capacity), 95% waste collection coverage, and 35% waste-to-energy conversion. Sector-specific measures target energy, industrial processes (including CE, recycled resources), waste (60–65% recycling), transport, agriculture/Land use, aligned with green strategies. Complemented by Nationally Appropriate Mitigation Actions (NAMAs) in energy and industry, these feed into the draft Long-Term Low Emission Development Strategy (LT-LEDS) to 2055, envisioning net-zero emissions through decarbonisation roadmaps and alignment with the 'New Uzbekistan 2030' strategy. Uzbekistan's 2022 adherence to the Global Methane Pledge commits to 30% methane reductions by 2030 (from 2020 levels), while the 2024 Decarbonisation Roadmap to 2060 and Technology Needs Assessments (TNAs, 2022) prioritise solar, wind, and efficiency technologies.

Adaptation and resilience-building frameworks

Uzbekistan's NDC 3.0 outlines key climate change adaptation measures, emphasising vulnerability in water, agriculture, health, emergencies, and buildings through sectoral plans up to 2030. Supported by the National Adaptation Plan (NAP), developed with Green Climate Fund (GCF) financing, these strategies integrate adaptation into planning and budgeting, prioritising institutional capacities and evidence-based risk identification. The Climate Council under the President, established in August 2024, coordinates unified policy, attracts green finance, and aligns with the Paris Agreement.

Uzbekistan's adaptation framework is anchored in the National Adaptation Plan (NAP 2022), which strengthens medium- to long-term planning across priority sectors, institutionalising capacities for iterative risk assessment and SDG localisation with climate-responsive indicators. Sectoral adaptation plans cover water resources (efficient irrigation, flexible allocation), agriculture (drought-resistant crops, water-saving tech on 27% of land), healthcare, emergencies, and infrastructure up to 2030, as detailed in NDC 3.0. The Regional Strategy on Climate Adaptation for Central Asia (to 2030) enhances coordination, funding mechanisms, knowledge exchange, and monitoring systems among neighbours.[21]

3.4. Reflections on SCP, CE, and Material Resource Efficiency in Uzbekistan's Climate Policy Landscape

Uzbekistan's climate policy landscape, anchored by its NDC 3.0 submitted to UNFCCC in 2025, demonstrates partial yet actionable integration of Sustainable Consumption and Production (SCP), Circular Economy (CE),

20 The Republic of Uzbekistan - Assessment Report NDC2 Stocktake, December 2021 – September 2024, UNDP, 2024 - https://www.undp.org/sites/g/files/zskgke326/files/2024-12/uzbekistan_ndc2_stocktake_0.pdf

21 Uzbekistan Climate and Resilience Assessment , World Bank, 2024 - https://documents1.worldbank.org/curated/en/099062724091034716/pdf/P1771081c619b30dd1a3041e470410c0239.pdf?_gl=1*1lqh40h*_gcl_au*OTQ3NDA3MjYwL-jE3MjM3NDY0ODQ.

and material resource efficiency principles, primarily as embedded cross-cutting logic rather than as stand-alone pillars. Explicit CE references appear in industry (Section 5.4.2, p. 19), promoting secondary/recycled resources and low-carbon transitions, while SCP aligns with SDG 12 in national circumstances (Chapter 5.1, p. 8) and resource-saving technologies across energy, waste, and agriculture. These elements align with global benchmarks like the UNEP 10YFP on SCP, which emphasises decoupling economic growth from resource use, as well as with EU Circular Economy Action Plans that link material cycles to GHG reductions. However, gaps persist in dedicated metrics, MRV lines, and demand-side measures, limiting full operationalisation.

Table 3. Uzbekistan's alignment of Nationally Determined Contributions (NDCs) with global benchmarks

Policy element	NDC 3.0 Reflection	Global benchmark alignment
SCP	SDG 12, efficiency – NDC 3.0(Ch. 5.1, p. 8)	UNEP 10YFP resource decoupling switch-asia
CE	Secondary materials, industry (NDC 3.0 Sec. 5.4.2, p. 19)	EU CEAP waste hierarchy wecoop
Material Efficiency	Resource-saving tech (NDC 3.0 Ch. 5.4, pp. 16-20)	IRP Circular Economy Report documents1.worldbank

This integration reflects broader Central Asian momentum, in which SCP and CE enhance NDC ambition through resource efficiency hotspots in industry and waste. Uzbekistan's green economy strategy (2019–2030) reinforces this integration via efficient natural resource use (Chapter 5.2, p. 10), mirroring World Bank analyses that position CE as a decarbonisation lever for emerging economies, potentially yielding 45% material productivity gains. The Waste Management and Circular Economy Agency (NDC institutional section, p. 36) provides governance anchoring, enabling synergies with Paris Agreement goals, though uneven sectoral depth – strongest in industry/waste, weaker in agriculture – signals implementation risks.

Strengths, gaps, and policy implications

Strengths lie in strategic framing: NDC 3.0 weaves SCP/CE into green growth narratives, creating entry points for finance and LT-LEDS, as evidenced by SWITCH-Asia's regional push for material flow analyses in Central Asia. This positions Uzbekistan competitively for blended finance, akin to global cases where CE unlocks $4.5 trillion in benefits by 2030 per Accenture/UNEP reports, through waste-to-value chains targeting 60%–65% recycling. Institutional signals, like the CE Agency, enhance credibility, aligning with OECD recommendations for CE governance in transition economies.

Key gaps include absent quantified indicators (e.g. circular material use rate), supply-side bias neglecting consumption patterns, and no explicit mitigation attribution to SCP/CE pathways – echoing critiques in IPCC AR6 of underleveraged resource efficiency in NDCs.

Policy implications urge follow-ups: evidence matrices for NDC hotspots, sector notes on construction/waste, and indicator sets for MRV, without reopening submitted text. Regionally, the EU Global Gateway and CAREC collaborations offer models for scaling, as in Kyrgyzstan's CE mainstreaming, to amplify Uzbekistan's ambition toward net-zero. Ultimately, deepening SCP/CE integration could elevate Uzbekistan's climate leadership, delivering co-benefits in jobs, resilience, and SDGs using Ellen MacArthur Foundation systemic analyses.

A detailed analysis on how NDC 3.0 of Uzbekistan reflects the material and climate change nexus (SCP, CE and Material Efficiency) is provided in **Annex 1** of this report.

4. RECOMMENDATIONS FOR OPERATIONALISING SCP AND CE FOR ENHANCED CLIMATE AMBITION AND GREEN GROWTH

Uzbekistan stands at a significant position where its national development aspirations, as articulated in the 'Uzbekistan2030' Strategy, are increasingly linked with the imperatives of climate action. The country's updated NDC 3.0 demonstrates step forward, explicitly linking economic growth with emission reduction and embedding CE principles as a crosscutting direction. However, as the analysis in the preceding chapters demonstrates, the transition from strategic recognition to systematic implementation requires a deliberate and structured approach. To fully capitalise on the synergies between SCP, CE and climate ambition, Uzbekistan must move beyond sectoral pilots and fragmented measures toward a cohesive, economy-wide strategy that leverages market transformation, targeted investments, and enhanced governance.

The following recommendations are structured to guide Uzbekistan in scaling up its CE and SCP efforts, turning them from underlying policy logics into primary drivers of its green growth and climate resilience agenda. They focus on seizing opportunities within high-potential sectors, establishing robust enabling frameworks, and strategically positioning the country to attract the necessary investment to realise its ambitious targets.

4.1. Catalysing market transformation in high-potential sectors

Uzbekistan's economic structure, characterised by resource-intensive industries and a rapidly modernising manufacturing base, presents a distinct opportunity to embed CE principles where they can yield the greatest impact. Rather than a horizontal approach, a targeted strategy focused on transforming the markets of a few high-potential sectors can create demonstration effects, build supplychain capacity, and unlock significant emission reductions. This approach aligns with the government's industrial modernisation agenda and its objective of integrating into highervalue global value chains.

4.1.1. Construction and built environment: Mainstreaming material circularity

The construction sector, identified in the NDC 3.0 as a priority for material efficiency, is a primary consumer of resources and a significant source of embodied emissions. Presidential Decree No. UP6197 (2023) provides a strong entry point by promoting energy efficiency and sustainable materials. To build on this, the following actions are recommended:

- ***Mandate green/sustainable procurement:*** Amend public procurement codes to mandate the use of recycled aggregates, low-carbon concrete, and secondary materials in all state-funded infrastructure and housing projects. This would create a stable, large-scale demand signal, catalysing investment in local recycling and processing facilities.
- ***Develop a national material efficiency standard:*** Establish a national standard for building materials that includes metrics for recycled content, material longevity, and 'de-constructability'. This standard should be integrated into building codes and certification schemes (e.g. 'green mortgages').
- ***Pilot industrial symbiosis for construction waste:*** Leverage the eco-industrial zones (e.g. Angren, Jizzakh) mandated by Decree No. 520 (2022) to establish 'material marketplaces' where construction and demolition waste from one enterprise becomes a feedstock for another. This would directly translate the decree's principles into operational industrial symbiosis.

4.1.2. Agrifood systems: Embedding resource efficiency and circularity

Agriculture, the cornerstone of rural livelihoods and a sector highly vulnerable to the impact of climate change, offers substantial opportunities for SCP and CE integration. The reliance of this sector on water, energy, and outside inputs like fertiliser creates a clear case for resource efficiency as a dual strategy for mitigation and adaptation.

- ***Scale water-efficient and circular agriculture:*** Move beyond pilot projects to systematically scale up water-saving technologies (e.g. drip irrigation) on a significant portion of irrigated land, as envisioned in the NDC. Such actions should be coupled with measures to promote the circular use of agricultural residues, as for example, biogas production, which addresses methane emissions (in line with the Global Methane Pledge) and provides alternative energy for rural communities.
- ***Promote closed-loop value chains:*** For highvalue crops like cotton and horticulture, establish programmes to support the valorisation of byproducts. This includes using cotton gin waste for composite materials or energy generation and promoting the use of compost from organic waste to reduce reliance on synthetic fertilisers, a key source of agricultural GHG emissions.
- ***Strengthen market incentives:*** Introduce fiscal incentives for farmers and agribusinesses that adopt circular practices, such as tax breaks for investments in water-efficient irrigation or subsidies for using certified recycled organic fertilisers.

4.1.3. Textile and manufacturing: Deepening circularity for global competitiveness

The textile sector, a flagship of Uzbekistan's industrial modernisation, is already one focus for circular practices through Presidential Decree No. UP112 (2022). The next step is to deepen the focus to align with the strict sustainability requirements of global markets and brands.

- ***Operationalise the 'Closedloop System':*** Accelerate the transition from the production of recycled polyester from PET waste to a fully operational, scaled system. This requires establishing collection and sorting infrastructure for PET waste and linking it directly to the needs of the textile industry.
- ***Develop a national circular textile roadmap:*** Create a comprehensive roadmap with clear targets for increasing the share of recycled fibres in production, reducing water and chemical use per unit of output, and managing preconsumer textile waste. This roadmap should align with international standards like OEKO-TEX and the Global Recycled Standard (GRS) to enhance export competitiveness.
- ***Promote eco-industrial clusters:*** Use 'green economy' industrial zones to create specialised textile clusters where material flows are optimised, waste is pooled, and shared utilities (e.g. water treatment, energy) reduce the collective environmental footprint.

4.2. Strengthening enabling frameworks

The successful scaling of SCP and CE requires more than sectoral actions; it demands a robust governance architecture that can coordinate, monitor, and enforce the transition. While the establishment of the Waste Management and Circular Economy Development Agency is a foundational step, its mandate and capacity need to be expanded to fulfil the crosscutting role envisioned in the NDC.

4.2.1. Elevate the Mandate of the CE Agency

To effectively steer the national CE transition, the role of the CE Agency should be formally expanded beyond waste management to encompass the following:

- ***Coordination of National CE Strategy:*** Task the Agency with leading the development and coordination of a dedicated National Circular Economy Strategy, which would serve as the operational bridge between the Green Economy Transition Concept and the sectoral targets in the NDC and LT-LEDS.

- ***Development of an MRV Framework for CE:*** The Agency should lead the creation of a monitoring, reporting, and verification (MRV) framework designed specifically for CE. This framework must address the key gaps identified in the NDC by developing and tracking quantified indicators, such as:
  - **Circular Material Use Rate (CMUR)**, which is the share of material inputs to the economy that come from recycled waste.
  - **Material Productivity**, the GDP per unit of material consumed.
  - **Waste generation per capita**, with specific targets for waste prevention, not just recycling.
  - **Share of recycled content in key industries**, tracking progress in construction, textiles, and manufacturing.
- ***Serve as a knowledge and finance hub:*** Position the Agency as a central point for knowledge exchange on CE, coordinating technical assistance (like that from SWITCH-Asia) and developing a pipeline of bankable CE projects to attract international and domestic investment.

4.2.2. Leveraging climate finance and multilateral development bank (MDB) commitments to strengthen the climate-SCP-CE nexus

The ambition of NDC 3.0 and the forthcoming LT-LEDS cannot be realised without a step-change in investment. Uzbekistan has a unique opportunity to harness the synergies between climate finance and broader public and private investment flows, particularly by aligning with the growing commitments of Multilateral Development Banks (MDBs) to Paris-aligned investments. MDBs, including the World Bank, European Bank for Reconstruction and Development (EBRD), Asian Development Bank (ADB), and European Investment Bank (EIB), have collectively pledged to align their portfolios with the goals of the Paris Agreement and to scale up financing for climate action. These institutions are increasingly recognising that CE solutions offer cost-effective pathways to reduce emissions while delivering adaptation and development co-benefits. Uzbekistan can proactively position itself to capture these flows through the following actions:

- ***Integrate CE criteria into the national climate finance architecture:*** Ensure that the country's climate finance strategy, including the design of its Green Climate Fund (GCF) proposals and Nationally Appropriate Mitigation Actions (NAMAs), explicitly incorporates circularity and resource-efficiency criteria. This would enable Uzbekistan to tap into dedicated MDB facilities that prioritise projects with strong material-efficiency and circular-economy outcomes.
- ***Develop a bankable pipeline of CE projects aligned with MDB priorities:*** Work closely with resident MDB missions and international financial institutions (IFIs) to codevelop a pipeline of investable projects that demonstrate clear emission-reduction potential, robust financial returns, and alignment with MDB Paris alignment frameworks. Some examples for considerations are mentioned below:
  - **Industrial symbiosis and ecoindustrial parks**: Scale the 'green economy' industrial zones with shared infrastructure for waste heat recovery, material exchange, and water recycling.
  - **Municipal waste-to-resource systems**: Move beyond waste-to-energy toward integrated material recovery facilities that produce highquality secondary raw materials, thereby attracting private sector investment in recycling value chains.
  - **Large-scale water efficiency and circular agriculture**: Create projects that bundle watersaving technologies with methane reduction (e.g. from livestock and rice paddies) and organic waste valorisation, which align with MDB priorities for climate mitigation and adaptation.
- ***Leverage the EU Global Gateway and blended finance instruments:*** The EU Global Gateway initiative offers a strategic vehicle for combining grants, technical assistance, and MDB loans to de-risk CE investments. Uzbekistan should actively engage with the EU and its Member States to anchor CE projects within Global Gateway's sustainable connectivity pillars, thereby accessing concessional financing and private sector coinvestment.
- ***Create Incentives for private capital through de-risking mechanisms:*** To attract private investment at scale, the government can establish dedicated de-risking instruments, such as a Circular Economy Guarantee Facility or first-loss tranches, supported by international donors and MDBs. Such mechanisms would address the perceived risks associated with novel circular business models and unlock institutional capital from pension funds, development finance institutions, and commercial banks.

By systematically aligning its investment strategy with the Paris-alignment pledges of MDBs and leveraging blended finance, Uzbekistan can transform its CE and SCP ambitions from a set of policy statements into a tangible, investmentled growth story. This approach not only supports the country's NDC 3.0 and LT-LEDS targets, but will also enhance its attractiveness as a destination for sustainable foreign direct investment.

4.2.3. From policy signals to investment flows

A persistent challenge across many developing economies, including Uzbekistan, is the gap between ambitious policy frameworks and the actual flow of investment into sustainable infrastructure, circular business models, and climate-aligned projects. Policy ambition alone, no matter how well articulated in the NDCs, green economy strategies, or sectoral decrees, does not automatically translate into capital deployment. Investment follows structure: predictable market conditions, clearly defined risk-return profiles, and bankable opportunities supported by enabling regulation. Translating Uzbekistan's policy commitments on SCP and CE into tangible investment flows therefore requires a deliberate approach that links policy instruments directly to market signals, de-risking mechanisms, and viable business models. Policy instruments shape the investment landscape by creating demand, establishing standards, and reducing uncertainty. In Uzbekistan, several existing policy levers, described below, can be strengthened to send clear, long-term signals to investors:

- ***Regulatory standards and mandates:*** Presidential Decree No. UP-6197 (2023) on sustainable construction introduces energy-efficiency requirements for buildings. Extending this to mandate minimum recycled content in construction materials – or requiring that a share of public buildings meet circular design criteria – would create predictable, sustained demand for secondary materials and circular construction services.
- ***Green Public Procurement (GPP):*** Public procurement in Uzbekistan accounts for a substantial share of economic activity, particularly in infrastructure, housing, and urban development. Amending procurement codes to incorporate environmental and circularity criteria – such as requiring low-carbon concrete, recycled aggregates, or life-cycle cost analysis – would transform the state's purchasing power into a powerful market-shaping force. This sends a clear signal to suppliers and financiers that circular products have a guaranteed market.
- ***Fiscal incentives:*** The tax incentives already provided under Presidential Decree No. UP-112 (2022) for textile manufacturers using recycled materials demonstrate how fiscal policy can encourage circular practices. Expanding such incentives to other sectors – for example, investment tax credits for construction firms using secondary materials, or accelerated depreciation for resource-efficient machinery – reduces the cost barrier for first-movers and improves the financial viability of circular business models.
- ***Long-term strategies and targets:*** The LT-LEDS currently under development, alongside the NDC 3.0 targets for waste recycling (60%–65%) and renewable energy (54% by 2030), provide the long-term visibility that investors require. When these targets are translated into sectoral roadmaps with interim milestones and clear institutional responsibilities, they reduce policy uncertainty and enable financial institutions to develop dedicated financing instruments.

4.2.4. From market signals to de-risked opportunities

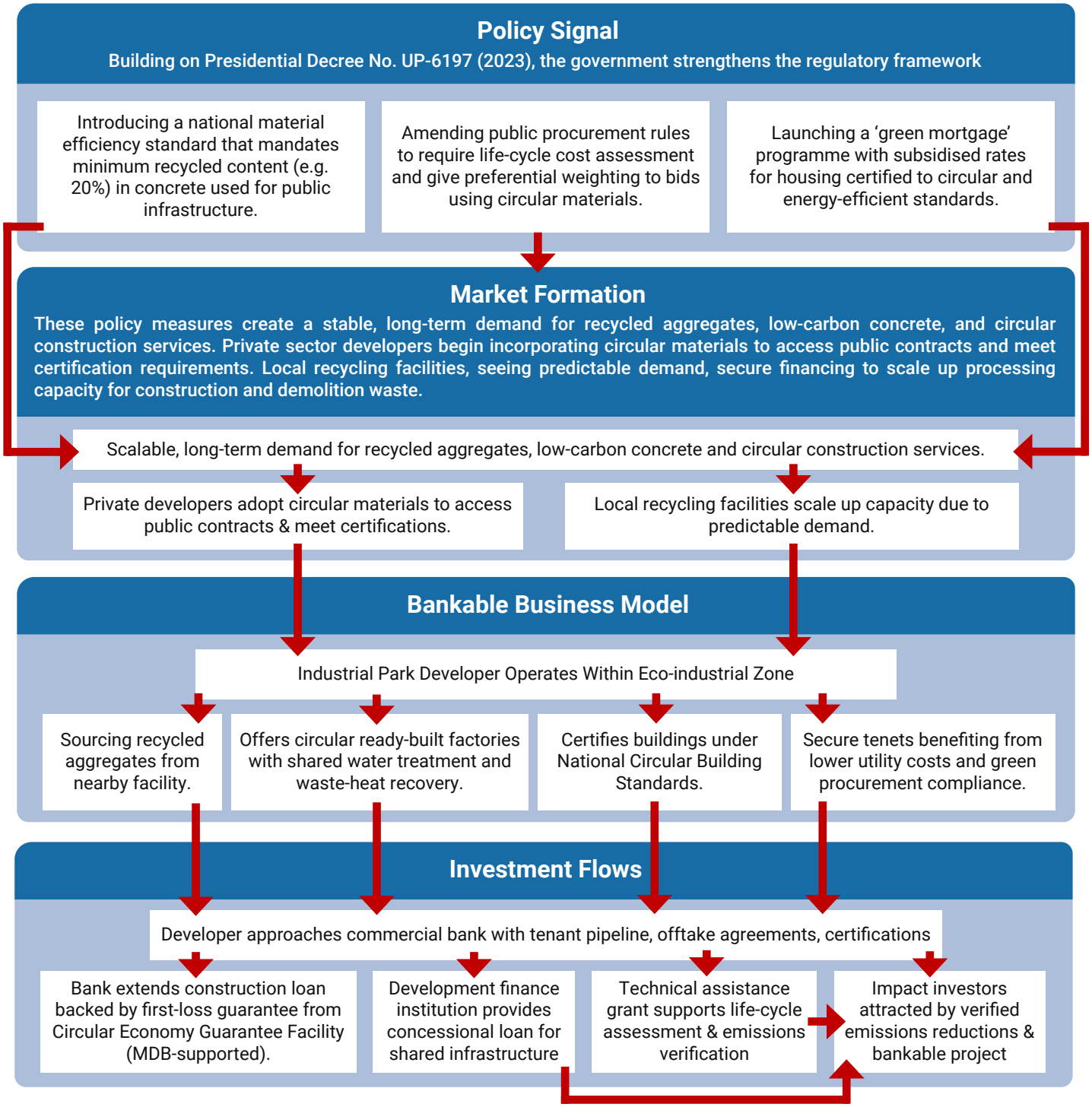
Even with clear policy signals, private capital may remain cautious where technologies are unproven in the local context, business models are novel, or transaction costs are high. De-risking mechanisms bridge this gap. Uzbekistan can deploy a range of instruments to make CE investments more attractive to commercial financiers:

- **First-loss guarantees and risk-sharing facilities:** A Circular Economy Guarantee Facility, co-financed by an MDB or development finance institution, could absorb a portion of the risk on loans extended by local commercial banks to SMEs investing in recycling infrastructure, circular agriculture, or industrial symbiosis. This allows banks to lend at more favourable terms while building internal expertise in assessing CE projects.

- **Technical assistance grants linked to investment:** Many CE projects require upfront feasibility studies, technology assessments, or piloting before they become bankable. Grant funding can be structured to accompany investment, covering the transaction costs that often deter private investors. When such grants are explicitly linked to subsequent investment tranches, they create a seamless pathway from concept to capital.
- **Blended finance facilities:** As outlined in the preceding section, blended finance combines concessional capital with commercial investment to achieve risk-return profiles acceptable to private financiers. A well-structured blended facility targeting a specific sector – such as plastics recycling or circular buildings – can aggregate multiple small-scale projects into a portfolio, reducing transaction costs and enabling institutional investors to participate.

Figure 1 illustrates how this chain from policy to investment can be operationalised.

Figure 1: Policy-to-Investment Sequencing Model for Circular Economy Transition - The Construction Sector in Uzbekistan



Roles and sequencing: A shared responsibility

Realising this transition requires coordinated action and multiple actors, each with distinct but complementary roles:

- ***Government (Ministries of Economy, Construction, Environmental Protection, CE Agency):*** Sets the regulatory framework, mandates circular procurement, issues green bonds, and establishes de-risking facilities. Provides the policy predictability that underpins long-term investment decisions.
- ***Financial Institutions (MDBs, Development Finance Institutions, Commercial Banks):*** Develop and deploy de-risking instruments, build internal capacity to assess CE projects, and offer tailored financing products (green mortgages, CE loans). MDBs, through their Paris-alignment commitments, can anchor blended finance structures and provide the concessional capital needed to crowd in commercial finance.
- ***Private Sector (Developers, Manufacturers, Recyclers, Industry Associations):*** Identifies and develops bankable projects, adopts circular business models, and engages with government to articulate barriers and opportunities. Industry associations can play a critical role in aggregating demand and developing sectoral roadmaps.
- ***European Union Delegation (EUD) and Global Gateway:*** The EUD, as a trusted partner and convener, can facilitate the alignment of technical assistance, policy dialogue, and investment. Under the Global Gateway strategy, the EUD can support the design of blended finance facilities, connect Uzbek stakeholders with European expertise and technology providers, and help structure investment pipelines that meet both climate and development objectives. The EU's experience in implementing CE programmes across the region positions it to provide advisory support on regulatory reform, project preparation, and monitoring frameworks that build investor confidence.

The sequencing of these interventions matters. Early-stage policy reforms and regulatory signals create the enabling environment. Targeted technical assistance and pilot projects demonstrate viability and build local capacity. De-risking instruments and blended finance facilities then allow successful pilots to be scaled into market-wide programmes. Finally, as markets mature and risk profiles become better understood, commercial finance can increasingly operate without concessional support, sustaining the transition over the long term.

The core message is clear: finance follows structure. By systematically translating policy signals into market conditions that reduce risk, create demand, and enable bankable business models, Uzbekistan can unlock the investment needed to turn its SCP and CE ambitions into measurable climate and green growth outcomes. Strategic Blended Finance as a Catalyst for Market Transformation

The transition toward CE and the scaling of climate action require not only increased volumes of finance but also a fundamental shift in how investment is structured and deployed. Strategic blended finance, which is the use of catalytic public or philanthropic capital to mobilise private investment at scale, brings a powerful instrument to bridge the gap between high-potential CE opportunities and the risk-adjusted return expectations of private investors. Uzbekistan possesses a clear opportunity to deploy blended finance instruments to create self-sustaining markets for circular products and services, particularly in sectors where the enabling conditions are already emerging. The following 'low-hanging fruit' sectors present immediate entry points for such strategic interventions:

- ***Plastics Recycling and Secondary Materials Markets:*** Uzbekistan has already taken steps to promote recycling in the textile sector (e.g. recycled polyester from PET). A blended finance facility could combine a concessional loan from an MDB with a grant component to support the development of a nationwide PET collection, sorting, and processing infrastructure. By de-risking the first-mover investments in recycling capacity, such a facility would catalyse a secondary materials market that can subsequently operate on commercial terms. This model can be replicated for other highvolume waste streams, including construction and demolition waste and agricultural plastics.
- ***Energy-efficient and Circular Buildings:*** The construction sector is ripe for a blended finance approach targeting the retrofitting of existing building stock and the deployment of circular, low-carbon materials in new developments. A dedicated facility could combine public subsidies or green bonds

from development banks with commercial bank lending and technical assistance for developers. The objective would be to create a market for 'green mortgages' and circular building materials, reducing the upfront cost premium and demonstrating the long-term operational savings. Uzbekistan's existing 'green mortgage' programme offers a foundation upon which such a facility could be built.

- ***Circular Agriculture and Bioenergy:*** The agrifood sector presents multiple opportunities for blended finance to scale circular practices. A structured facility could provide blended financing including results-based payments for emission reductions to support the deployment of biogas plants, organic waste composting facilities, and precision irrigation systems. By linking finance to verified climate and resource-efficiency outcomes, such an instrument would attract both impact investors and commercial banks, creating a new asset class in sustainable agriculture.
- ***Industrial Symbiosis Hubs:*** The 'green economy' industrial zones already provide a policy framework for industrial symbiosis. A blended finance programme could offer de-risked capital for shared infrastructure such as centralised wastewater treatment, material exchange platforms, and district heating from waste heat within these zones. By covering the initial capital expenditure through a mix of concessional and commercial finance, the programme would reduce the cost burden on individual enterprises and demonstrate the viability of symbiotic models, encouraging replication across other zones.

To maximise the impact of such interventions, Uzbekistan should establish a dedicated Circular Economy and Climate Finance Task Force under the Ministry of Economy and Finance or the CE Agency, with a mandate to design, structure, and monitor blended finance facilities. The task force would work in close partnership with MDBs, development finance institutions, and private sector associations to align project pipelines with investor requirements, embed robust MRV frameworks, and ensure that public resources are used to leverage maximum private capital.

By accepting strategic blended finance as a core pillar of its climate and CE strategy, Uzbekistan can transform high-potential sectors into engines of green growth, creating jobs, reducing emissions, and building resilience – all while sending a strong signal to international markets that the country is open for sustainable investment.

4.2.5. Harnessing Regional Collaboration to Scale CE and Climate Ambition

Uzbekistan's efforts to advance SCP and CE can be significantly amplified by actively engaging in regional cooperation frameworks. Central Asia's shared environmental resources – particularly transboundary water systems, energy networks, and value chains – make a coordinated approach to circularity both a necessity and a strategic opportunity. The upcoming Central Asia Regional Collaboration Framework for Circular Economy is a landmark initiative that can provide a structured platform for harmonising policies, pooling resources, and accelerating the transition toward a circular and climate-resilient regional economy. Uzbekistan stands to benefit from and contribute to such a framework in several ways:

- ***Policy Harmonisation and Standard Setting:*** The regional framework offers a vehicle for aligning national CE policies, standards, and monitoring methodologies across Central Asian countries. Uzbekistan can use this platform to advocate for common definitions of secondary materials, harmonised extended producer responsibility (EPR) schemes, and mutual recognition of circular product standards – reducing barriers to regional trade in recycled goods and fostering cross-border industrial symbiosis.
- ***Joint Investment and Knowledge Platforms:*** By collaborating with neighbouring countries, Uzbekistan can access pooled technical assistance, shared knowledge repositories, and cofinanced infrastructure projects. The SWITCH-Asia Programme's regional approach has already demonstrated the value of such exchanges. The new framework can institutionalise these mechanisms, enabling Uzbekistan to learn from and replicate successful CE models from across the region while sharing its own emerging best practices.
- ***Regional Value-chain Circularity:*** Key sectors such as cotton-textile, agrifood, and construction materials are deeply integrated across Central Asia. A regional collaboration framework can facilitate the development of cross-border circular value chains – for example, by connecting cotton producers

in one country with textile recyclers in another, or by creating regional markets for recycled construction materials. Uzbekistan, with its advanced textile and manufacturing sectors, can position itself as a regional hub for circular production and a leader in industrial symbiosis.

- ***Enhanced Access to International Finance:*** A unified regional approach to CE signals a larger, more stable market to international investors and MDBs. By coordinating its project pipeline with neighbours under a recognised regional framework, Uzbekistan can attract larger-scale, multicountry financing packages, particularly from MDBs and climate funds that prioritise regional public goods and transboundary environmental outcomes.
- ***Capacity Building and SouthSouth Cooperation:*** The regional framework can serve as a platform for structured capacity building, leveraging the expertise of regional centres of excellence, academic institutions, and specialised agencies. Uzbekistan can benefit from training programmes, study tours, and technical exchanges that strengthen institutional capacities in areas such as material flow analysis, circular design, and climatefinance readiness.

Uzbekistan should therefore actively champion and participate in the development of the Central Asia Regional Collaboration Framework for Circular Economy, using it as a strategic lever to enhance the ambition, coherence, and bankability of its national SCP and CE agenda. By embedding its national actions within a robust regional architecture, Uzbekistan can not only accelerate its own green transition but also help shape a more sustainable, resilient, and integrated Central Asian economy.

4.3. Aligning long-term planning and institutional capacity

The long-term nature of the transition to a circular and low-carbon economy requires that SCP and CE principles are not only integrated into the NDC (a short to mediumterm instrument) but are also central to the Long-term Low Emission Development Strategy (LT-LEDS) currently under development. This alignment is critical for ensuring policy coherence and sending consistent signals to investors and industry.

4.3.1. Anchor SCP and CE as pillars of the LT-LEDS

The draft LT-LEDS to 2055 should explicitly build upon the foundation laid in NDC 3.0 by:

- ***Defining a long-term circularity vision:*** Articulate a clear vision for Uzbekistan's circular economy by mid-century, including quantitative long-term targets for material productivity, circular material use, and the decoupling of economic growth from resource use.
- ***Developing sectoral transition pathways:*** For key sectors like construction, agriculture, and manufacturing, develop detailed transition roadmaps that map out how circularity will contribute to achieving net-zero emissions. This should include a phased plan for phasing out the most material and carbon-intensive practices.
- ***Integrating adaptation and resource efficiency:*** Explicitly address the material resource implications of adaptation actions within the LT-LEDS. This means planning for climate-resilient infrastructure (e.g. water retention systems, flood defences) with a CE lens, ensuring they are built using low-carbon, recycled, and durable materials to avoid locking in long-term embodied emissions.

4.3.2. Invest in Institutional Capacity and Human Capital

The complexity of a CE transition will necessitate new skills, cross-sectoral coordination, and a shift in mindset across government, industry, and civil society.

- ***Build cross-government capacity:*** Implement targeted capacity building programmes for line ministries (e.g. Economy, Energy, Agriculture, Construction) to understand and integrate SCP and CE principles into their sectoral planning and budgeting processes. This includes training on tools like material flow analysis (MFA) and life-cycle assessment (LCA).

- ***Foster a skilled workforce:*** Collaborate with universities and technical institutes to develop curricula focused on circular design, industrial symbiosis, sustainable materials management, and resource-efficient production technologies. This will create the human capital needed to drive the transition.
- ***Enhance stakeholder engagement:*** Institutionalise multi-stakeholder platforms that bring together the government, private sector, and civil society to codesign and oversee the implementation of CE strategies. Building on the successful regional engagement models, these platforms can facilitate knowledge exchange, identify barriers, and build consensus on priorities.

In conclusion, Uzbekistan has laid a credible foundation by integrating SCP and CE principles into its national development and climate strategies. The opportunity now lies in moving from strategic intent to large-scale, operational implementation. By focusing on market transformation in high-potential sectors, establishing a robust enabling environment with clear metrics and governance structures, strategically aligning with international climate finance flows – particularly the Paris-alignment commitments of MDBs, deploying strategic blended finance to catalyse markets, and actively engaging in regional collaboration frameworks such as the Central Asia Regional Collaboration Framework for Circular Economy, Uzbekistan can not only meet its ambitious NDC targets but also establish itself as a regional leader in harnessing the power of the circular economy for sustainable, inclusive, and climate-resilient green growth.

ANNEX 1: REFLECTION OF SCP AND CE ELEMENTS IN THE UZBEKISTAN NDC 3.0, DETAILED ANALYSIS

Overall assessment of SC/CE integration

The overall pattern is that SCP is integrated in the NDC, but mostly as an underlying policy logic rather than an explicit thematic pillar.

In practical terms, SCP appears in three main ways:

- Strategic recognition, through the explicit reference to SDG 12 in Chapter 5.1.[22]
- Operational framing, through repeated references to: resource-saving, energy efficiency, sustainable and efficient use of natural resources, and green transformation.[23]
- Sectoral application, through measures in energy, industry, waste, and agriculture that are consistent with more sustainable production systems and reduced resource pressure.[24]

Key qualification

While this is enough to confirm that SCP has been integrated, the integration remains indirect and incomplete.

What the NDC does not do: define SCP as a dedicated climate mitigation approach, set out a separate SCP framework, identify SCP-specific targets or indicators, or organise mitigation measures under an explicit sustainable consumption and production lens.

SCP and CE are clearly present in Uzbekistan's NDC 3.0, but mainly as embedded cross-cutting logic for resource efficiency, green economy transition, and alignment with sustainable development, rather than as a distinct, fully articulated policy pillar.

CE-related integration

CE is more explicitly integrated into Uzbekistan's submitted NDC 3.0 than SCP, although the integration remains selective and is not yet structured as a full cross-economy circular transition framework. The strongest CE references appear in the industrial sector, followed by the waste sector, and are reinforced by institutional language in the document's implementation section.

The clearest and strongest CE reference: Industrial sector (Section 5.4.2)

The most direct CE integration appears in Section 5.4.2, 'Industrial processes and product use'.

In this section, the NDC states: 'The promotion of circular economy principles and the transition to low-carbon development are cross-cutting directions in all strategic documents'.[25]

This is the strongest explicit statement on CE in the entire NDC. It is important for two reasons:

i. it confirms that CE is not treated as an external or unrelated concept; and
ii. it frames CE as a cross-cutting development direction, linked directly to low-carbon transformation.

This makes Section 5.4.2 the principal basis for concluding that CE has been formally integrated into the NDC's mitigation narrative.

22 *Updated nationally determined contribution of the Republic of Uzbekistan (NDC 3.0) for the period up to 2035 within the Framework of the Paris Climate Agreement*. Chapter 5.1, p. 8.
23 Ibid. Chapter 5.1 – 5.2, p. 8-10.
24 Ibid. Chapter 5.4.1 – 5.4.3, p. 16-20.
25 Ibid. Chapter 5.4.2, p. 19.

CE in the NDC is not only conceptual, it is linked to practical industrial measures

The same Section 5.4.2 goes beyond the policy statement and connects CE to practical industry measures. The NDC highlights the following: increasing the use of secondary and recycled resources, introducing innovative energy-efficient technologies, promoting cleaner industrial processes, and modernising production, especially in construction materials and cement.

A particularly important sentence notes that measures in the construction materials sector are aimed at 'increasing the use of the secondary and recycled resources and introducing innovative energy-efficient technologies'.[26]

This is a concrete CE-related formulation because it moves beyond general efficiency and directly introduces secondary resource use, recycled material inputs, and material circularity in production. From an analytical perspective, this is the point where CE is most clearly translated into a sectoral mitigation pathway.

The industrial application of CE is strongest in materials-intensive sectors

Still within Section 5.4.2, the NDC places particular emphasis on construction materials, cement production, chemical industry modernisation, and heat recovery in energy-intensive processes.

These measures are not all 'circular' in the narrow technical sense, but together they show that the NDC understands CE primarily as part of cleaner industrial modernisation, better material use, lower process waste, and higher efficiency in resource-intensive sectors.

So, in practical terms, the NDC's CE lens is strongest in industrial production systems, especially where material substitution, recycled inputs, and process efficiency can reduce emissions.

CE is also reflected in the waste sector (Section 5.4.3)

The second major CE entry point is Section 5.4.3, 'Solid household waste management'. This section does not develop a full CE framework in explicit conceptual terms, but it contains several clearly CE-consistent elements.

The NDC refers to reducing waste generation, ensuring the rational use of waste in economic activities, increasing solid household waste recycling, expanding waste collection and processing, generating alternative energy from waste, and reducing landfill pressure.[27]

The text also mentions national targets under the waste strategy, including:

- 100% coverage of the population with waste collection and removal services by 2028
- a 60%–65% recycling level for solid household waste.

These are highly relevant CE signals because they reflect a shift away from a purely disposal-based waste model and toward recovery, recycling, value extraction from waste streams, and partial recirculation of materials.

This means CE is not only referenced as a principle, but also reflected in the NDC through waste-sector modernisation measures that support circularity.

Waste-to-energy is included, but this should be read carefully in CE terms

Also in Section 5.4.3, the NDC highlights several waste-to-energy projects, including:

- production of thermal energy from medical waste, and
- electricity generation through burning solid household waste in several regions.[28]

These measures are relevant to the NDC's mitigation logic because they reduce landfill volumes and can contribute to emissions reduction. However, from a CE perspective, this is a mixed signal because waste-

26 Id.
27 Ibid. Chapter 5.4.3, p. 20.
28 Id.

to-energy can support methane reduction and lower uncontrolled disposal, but this is not the same as high-value circularity, such as waste prevention, reuse, remanufacturing, or higher-value recycling.

So, while the NDC does include CE-relevant waste measures, the CE approach in this section remains weighted more toward waste management, recovery, and energy extraction than toward a full waste hierarchy centred on prevention and material recirculation.

CE is reinforced institutionally in the implementation architecture

A very important supporting reference appears in the institutional/implementation section of the NDC, where the document states that the Ministry has established the 'Waste Management and Circular Economy Development Agency'.[29]

The NDC further explains that this agency is responsible not only for coordinating waste management activities, but also for developing and organising measures to promote a CE through the production of energy resources, raw materials, and materials from waste sorting and processing.

This is a highly significant point in the analysis. It shows that the CE is not only mentioned in sectoral texts; it is also reflected in the country's institutional governance structure. That gives CE stronger credibility in the NDC than if it were mentioned only as a policy aspiration. In other words, the NDC provides evidence of institutional recognition of CE, not only rhetorical acknowledgment.

CE also appears in the broader sustainability and co-benefits narrative

In the broader narrative section of the NDC, which discusses sustainability co-benefits and long-term development, the document states: 'The circular economy in Uzbekistan represents a promising direction for sustainable development…', and that Uzbekistan is introducing circular approaches in key sectors including: energy, industry, agriculture, construction, and housing and utilities.

The NDC also notes that pilot projects are underway for the recycling of raw materials, the adoption of resource-saving and energy-efficient technologies, the development of green infrastructure, and the modernisation of production processes. This part of the document is important because it broadens CE beyond industry and waste alone. However, it remains more descriptive and strategic than operational. This means that it strengthens the overall narrative that CE is part of Uzbekistan's green development direction, but it does not yet provide the same level of concrete detail as the industry and waste sections.

Overall assessment of CE integration

Taken together, the NDC shows that CE has clearly been integrated, and more explicitly than SCP.

The integration appears in three main forms:

1. Explicit policy recognition, through the direct statement in Section 5.4.2 that CE principles are a cross-cutting direction in strategic documents.
2. Sectoral application, through the use of secondary and recycled resources in industry, recycling and recovery measures in the waste sector, and circularity-related modernisation of production systems.
3. Institutional reinforcement, through the establishment of the Waste Management and Circular Economy Development Agency, which gives CE an identifiable governance anchor.

Key qualification

Although CE is clearly present, the integration is still partial rather than comprehensive. The NDC does not yet provide a dedicated national CE framework within the NDC itself, quantified CE indicators (such as circular material use rate, secondary material share, material productivity, or waste prevention targets beyond recycling), a sector-by-sector circular transition roadmap, or a full link between CE measures and the NDC's overall mitigation accounting.

29 Ibid. Institutional section, p. 36.

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