switchasia

Funded by
the European Union

INTEGRATING SUSTAINABLE CONSUMPTION AND PRODUCTION (SCP) AND CLIMATE CHANGE POLICY

A Strategic Contribution to Strengthening Pakistan's Nationally Determined Contributions (NDC 3.0) and Long Term - Low Emission Development Strategy (LT-LEDS)

White Paper

Acknowledgement

This White Paper on *Integrating Sustainable Consumption and Production (SCP) and Climate Change Policy: A Strategic Contribution to Strengthening Pakistan's Nationally Determined Contributions (NDC 3.0) and Long Term - Low Emission Development Strategy (LT-LEDS)* was prepared on behalf of the EU SWITCH-Asia Policy Support Component (PSC) by Arif Rahman under the supervision of Ranga Pallawala, Key Expert on Climate Change and Environment Policy, Sachin Joshi, Key Expert on SCP Policy Options and SDG12 Progress, and Dr Zinaida Fadeeva, Team Leader, SWITCH-Asia Policy Support Component.

switchasia

Funded by
the European Union

The SWITCH-Asia Programme

Disclaimer

The information and contents in this document are the sole responsibility of the authors and do not necessarily reflect the views of the European Union.

Table of Contents

List of Abbreviations

CE	Circular Economy
EPR	Extended Producer Responsibility
EU	European Union
EUD	European Union Delegation
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GCF	Green Climate Fund
GHG	Greenhouse Gas
IFC	International Finance Corporation
ITC	International Trade Centre
LT-LEDS	Long Term - Low Emission Development Strategy
NDC	Nationally Determined Contribution
PPP	Public-Private Partnership
SCP	Sustainable Consumption and Production
SDG	Sustainable Development Goal
TA	Technical Advisory

1. Executive summary

This White Paper, *Integrating Sustainable Consumption and Production (SCP) and Climate Change Policy: A Strategic Contribution to Strengthening Pakistan's Nationally Determined Contributions (NDC 3.0) and Long Term - Low Emission Development Strategy (LT-LEDS)*, outlines a strategic approach to integrating sustainable consumption and production (SCP) into Pakistan's development framework. As Pakistan faces mounting challenges from resource scarcity, climate vulnerability, and economic pressures, the adoption of SCP principles offers a transformative pathway to build resilience, foster economic growth, and align with global sustainability standards. Indeed, the United Nations Environment Programme (UNEP, 2024) underscores the transformative potential of embedding SCP into national policies, significantly enhancing economic resilience and environmental health [1].

1.1. Context and rationale

Pakistan's economic growth is heavily reliant on resource-intensive practices in key sectors such as agriculture, manufacturing, and energy. Rapid industrialisation and urbanisation have increased pressures on water and energy resources, leading to significant inefficiencies, rising emissions, and environmental degradation. SCP presents a vital solution by promoting resource efficiency, reducing dependency on imported fuels, and supporting sustainable industrial practices that collectively enhance Pakistan's competitive position internationally — reinforcing that Pakistan's NDC is not just a climate pledge, but a strategy for resilient, resource-efficient, low-carbon development.

1.2. SCP integration strategy

The report presents a structured roadmap for embedding SCP principles within national policies, such as Vision 2025 and the Nationally Determined Contributions (NDCs), and sectoral strategies to drive sustainable growth. Emphasising a holistic framework, the approach focuses on three core pillars:

- **Resource efficiency**: Optimising resource use across sectors to conserve water, energy, and raw materials, thereby reducing costs and strengthening economic resilience
- **Circular economy**: Encouraging recycling, waste reduction, and resource recovery to minimise environmental impacts and support sustainable urban and industrial development
- **Sustainable production practices:** Advancing cleaner technologies, renewable energy, and lower-emission production models, particularly in high-impact sectors, to align with international sustainability standards

1.3. Key recommendations

To facilitate SCP integration, the report offers targeted recommendations for national policy alignment, private sector engagement, community involvement, and international collaboration.

- **Mainstream SCP in climate and development Policy** - SCP should be formally integrated into Pakistan's national frameworks, NDC 3.0, and LT-LEDS—to address emissions at the root through more sustainable use of materials, energy, and resources. This will broaden the mitigation narrative beyond energy transitions and allow Pakistan to reduce its carbon and material footprints in parallel. Aligning with provincial strategies will ensure consistency and implementation at all levels.
- **Create incentives for climate-aligned private sector actions** - to harness the private sector's role in climate mitigation, Pakistan should introduce a mix of policy tools to encourage low-carbon production and innovation. Green procurement, concessional financing, and recognition of sustainability leaders can drive change, while the development of an Extended Producer Responsibility (EPR) framework will shift emissions accountability upstream and promote circular design.

SCP interventions such as eco-innovation, circular infrastructure, and waste-to-energy systems can be positioned as eligible investments under international climate finance mechanisms, including the Green Climate Fund and the Global Environment Facility. Aligning national sustainability standards with international ones, such as ISO 14001 or the EU CBAM, can also attract green investment and support low-carbon trade competitiveness.

- **Strengthen institutional capacity for SCP-climate integration** - Pakistan should establish an inter-ministerial SCP Coordination Body that would also include authorities responsible for Climate Change, to lead the integration of SCP into climate plans and sectoral strategies. Institutional capacity, especially at provincial level, must also be enhanced to support implementation, enforcement, and coordination across relevant agencies and ministries.
- **Use SCP to reduce emissions in key sectors** - integrating SCP into sectors such as agriculture, textiles, cement, energy, and waste can unlock significant mitigation potential. In agriculture, for example, SCP improves resilience and reduces nitrous oxide emissions through more efficient inputs. Cleaner production and resource reuse in textiles lower industrial emissions. In construction, alternative fuels and materials reduce both process and energy-related emissions. Waste reduction and recycling minimise methane emissions, while demand-side energy efficiency cuts consumption-related carbon footprints. Together, these measures diversify Pakistan's mitigation portfolio and directly contribute to its NDC targets.
- **Build SCP into climate monitoring and reporting** – a national monitoring framework that tracks SCP indicators, aligned with SDG 12 and NDC reporting systems, can capture climate benefits from resource efficiency and circularity. Improved data and regular reporting from priority sectors will enhance transparency and support more accurate measuring, reporting, and verification (MRV) of Pakistan's climate actions.
- **Leveraging international partnerships** - aligning with global standards and accessing international funding to support SCP initiatives and enhance Pakistan's market competitiveness
- **Promote climate-aware behavioural change** - public awareness, sustainability education, and local engagement – of communities and businesses - are essential to shift consumption patterns and reduce emissions. Promoting climate-friendly practice, such as energy and water conservation, repair and reuse, and responsible waste management, can complement policy-level action. Recognising youth and local leaders will help build momentum for low-carbon lifestyles and SCP adoption at scale.

1.4. Conclusion and call to action

SCP provides Pakistan with a unique opportunity to pursue sustainable economic growth while safeguarding natural resources and supporting social well-being. Success requires coordinated action across government, the private sector, and civil society, with each stakeholder playing a critical role in embedding SCP into Pakistan's development framework. By integrating SCP principles today, Pakistan can build a resilient, competitive, and sustainable economy for future generations.

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 while promoting sustainable production and consumption patterns. As part of this engagement, the SWITCH-Asia 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. The PSC team works in close exchange with the Consortium Partners (GOPA and NIRAS), DG INTPA Unit C3 in Brussels (Programme Manager), and is in addition in continuous contact with the target regions' EU Delegations (EUDs). With a duration of 48 months from 1 January 2023, the PSC consists of a team of Key Experts (KEs) focusing on different aspects of implementation, including policy advisory, knowledge exchange and stakeholder engagement. To support these actions, and with the ambition of developing regional capacities, non-key experts (NKEs) are mobilised for long-term (> 12 months) and short-term assignments to address key SCP policy and implementation needs as expressed by the countries within the target region.

This White Paper was developed as a part of an exploratory Technical Advisory (TA) called 'Sustainable Consumption and Production (SCP)-linked Nationally Determined Contributions (NDC) – Lessons Learnt from the Champion Countries and identifying opportunities for capitalising synergies between NDC & SCP', which was carried out in five South Asian countries: Bangladesh, Bhutan, Nepal, Pakistan, and Sri Lanka.

2.2. Introduction to the Technical Advisory (TA)

The nexus between climate change and sustainable consumption and production

Unsustainable consumption and production patterns constitute the fundamental drivers of three interlinked planetary crises: climate change, biodiversity erosion, and environmental pollution. Evidence demonstrates that strategic modifications to these patterns could substantially reduce global greenhouse gas emissions through both direct and indirect pathways. Deploying sustainable consumption and production (SCP) frameworks yields significant co-benefits for climate change mitigation and sustainable development, particularly concerning natural resource extraction and utilisation. The Global Resources Outlook 2024 by the International Resources Panel (IRP) presents compelling evidence of this relationship. Thus, the extraction and processing of material resources (fossil fuels, minerals, non-metallic minerals and biomass) account for over 55% of greenhouse gas emissions (GHG) and 40% of particulate matter health-related impacts. If land use change is considered, climate impact grows to more than 60%, with biomass contributing the most (28%) followed by fossil fuels (18%) and then non-metallic minerals and metals (17% combined). Biomass (agricultural crops and forestry) also accounts for over 90% of total biodiversity loss and water stress related to land use.

These findings emphasis the substantial potential for both climate change mitigation and adaptation strategies through enhanced material resource efficiency and sustainable resource management practices. According to Impact Investor (2024), SCP frameworks effectively balance economic growth and ecological sustainability by targeting resource efficiency and sustainable consumption [2]. The data demonstrate clear pathways for intervention through improved production processes and consumption patterns. Despite its significance, however, the nexus between climate change and sustainable consumption and production remains substantially underexplored in global climate policy frameworks. However, the Paris Agreement and its associated Nationally Determined Contributions (NDCs) present a strategic opportunity for nations to explore this critical relationship more comprehensively, and to integrate SCP strategies into climate actions while developing more holistic approaches to emissions reduction and climate change resilience building.

Nationally Determined Contributions (NDCs)

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), 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. All the parties are supposed to update their NDC progressively every five years in order to achieve the overall objectives of the Paris Agreement. 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 thus 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.

During the first NDC cycle of the Paris Agreement, many Asia-Pacific countries included SCP-linked NDC targets and championed SCP-NDC integration. Altogether 28 countries in the Asia-Pacific region have a direct reference to SCP within their NDC targets, while in almost every country there are SCP related targets without a direct reference to SCP. Energy efficiency, waste management, value chain improvements, green buildings, building materials with low carbon footprints, and promotion of sustainable lifestyles are some of the common SCP-linked NDC areas in Asia. However, many of these targets have been provided as conditional, because their achievement is contingent upon access to international support for finance, technology and capacity building.

In 2025, all the parties to the Paris Agreement are required to submit their third round of Nationally Determined Contributions (NDC 3.0), which must demonstrate increased climate ambitions guided by the Global Stocktake (GST) outcomes. This update presents countries with a strategic opportunity to integrate their national priorities – including sustainable consumption and production (SCP) – into their enhanced climate commitments. This bottom-up approach to the NDCs enables countries to effectively align their domestic objectives with international climate ambitions, ensuring both national relevance and global climate action. To capitalise on this opportunity, the present TA, 'Sustainable Consumption and Production (SCP)-linked Nationally Determined Contributions (NDC) – Lessons Learnt from the Champion Countries and identifying opportunities to capitalise synergies between NDC & SCP' has been specifically designed and implemented to support target countries in enhancing their NDCs. The TA aims to add value by making the NDCs more relevant and pragmatic, helping countries bridge the gap between ambitious climate goals and practical implementation strategies.

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:

- assess the current status of SCP integration within existing climate ambitions
- identify the potential opportunities for enhanced integration
- explore viable pathways for implementing these integration options

This scoping approach allows for a comprehensive understanding of both existing practices and future possibilities, providing a foundation for more targeted interventions in supporting country climate actions.

2.4. Methodology

The TA was conducted as a scoping assessment to explore potential avenues for integrating SCP into the Nationally Determined Contributions (NDCs) of the country, and was designed to collect the required information through two main processes:

- studying the relevant policy documents of the country pertaining to SCP and climate change
- holding consultations with key stakeholders

2.5. Climate Change Landscape in Pakistan

Pakistan ranks among the world's most vulnerable countries to climate change, consistently placed within the top ten in global vulnerability indices, notably the Global Climate Risk Index, due to its exposure to extreme weather events, limited adaptive capacity, and socioeconomic pressures [3]. Over recent decades, the country has experienced intensified climatic events, including unprecedented floods, heatwaves, prolonged droughts, and severe storms, directly impacting millions of lives, the agricultural sector, and overall economic stability [4].

The catastrophic floods of 2022, described by the UN Secretary-General as a "climate catastrophe," affected approximately 33 million people, causing widespread displacement and resulting in economic losses estimated at over USD 30 billion—approximately 9% of Pakistan's GDP [5]. These floods highlighted critical vulnerabilities in Pakistan's infrastructure, agriculture, and disaster management capabilities, emphasizing the urgent need for sustainable resource management and resilient infrastructure strategies as outlined in this White Paper.

Water scarcity remains a critical issue exacerbated by climate change, particularly affecting agricultural productivity and urban water supply. According to the World Resources Institute, Pakistan is projected to become severely water-stressed by 2040, intensifying existing tensions over water distribution and availability [6]. Additionally, shifting rainfall patterns and glacial melt in the Himalayas threaten Pakistan's primary water sources, further endangering agricultural livelihoods, food security, and hydroelectric energy generation capacity [7]. These challenges underscore the importance of Sustainable Consumption and Production (SCP) practices, specifically precision irrigation and resource-efficient agricultural methods detailed in subsequent sections of this document.

Energy insecurity is another dimension of Pakistan's climate challenge, as the country remains heavily dependent on imported fossil fuels, leaving it vulnerable to international market volatility and supply disruptions. With approximately 80% of the country's energy mix reliant on fossil fuels, enhancing energy resilience through sustainable sources such as solar, wind, and hydropower is vital not only for reducing greenhouse gas emissions but also for stabilizing the national economy and improving energy access [8]. The integration of SCP frameworks into Pakistan's energy policy, as advocated in this White Paper, can significantly mitigate these risks and facilitate a sustainable energy transition.

In response, Pakistan has actively pursued comprehensive climate policies. The Ministry of Climate Change (MoCC) spearheaded the National Climate Change Policy and subsequent initiatives. The National Action Plan on Sustainable Consumption and Production (NAP-SCP, 2017) further emphasizes the integration of SCP practices into national development plans, providing targeted strategies to reduce environmental pressures and enhance resource efficiency [9]. Furthermore, Pakistan's updated Nationally Determined Contribution (NDC) commits to significant emission reductions, renewable energy expansion, and climate resilience measures aligned with global climate objectives set forth in the Paris Agreement [10]. The present White Paper builds upon these commitments, offering detailed recommendations for embedding SCP principles into national development strategies.

Despite these commendable steps, significant challenges remain, notably in policy implementation, financing, and coordination across federal and provincial governments. Integrating SCP practices into national planning frameworks emerges as a necessary pathway, providing practical solutions to build climate resilience, optimize resource use, and reduce environmental pressures. This White Paper sets forth a clear roadmap to achieve these goals, ensuring long-term sustainable economic growth and societal well-being in the face of intensifying climate impacts [11].

3. Integrating SCP into Pakistan's Development Strategy

3.1. Sustainable development challenges in Pakistan

Pakistan currently stands at a crucial juncture where economic growth and environmental sustainability must be balanced to ensure a secure future. Rapid population growth, urban expansion, and industrial development have led to increased pressures on natural resources, exposing the limitations of current production and consumption patterns. Water scarcity, heavy reliance on imported fossil fuels, inefficient energy use, and inadequate waste management are key challenges that risk compromising both economic stability and environmental integrity.

These challenges are exacerbated by the impact of climate change, which adds layers of vulnerability to Pakistan's ecosystems, agricultural productivity, and infrastructure. Sectors such as agriculture, manufacturing, and energy are heavily resource-dependent, which leads to inefficiencies, increased emissions, and a higher carbon footprint. Addressing these issues requires a transformative approach that emphasises sustainable practices and resource optimisation across sectors. Sustainable consumption and production (SCP) presents a critical opportunity to tackle these challenges comprehensively, offering solutions that can reinforce Pakistan's resilience, improve environmental outcomes, and ensure sustainable economic growth.

3.2. SCP as a strategic framework for sustainable growth

Rather than treating sustainability as a series of separate actions, SCP represents an integrated framework that weaves resource efficiency, circularity, and sustainable production practices into Pakistan's broader development goals. By embedding SCP within existing policies and economic plans, Pakistan can enhance its economic resilience and environmental health, creating a foundation for long-term sustainable growth.

Implementing SCP across key areas like Vision 2025, the Nationally Determined Contributions (NDCs), and sector-specific policies enables Pakistan to align its domestic actions with international climate and sustainability goals. SCP provides a pathway to minimise resource dependency, improve energy efficiency, and reduce emissions while fostering innovation in green industries. This alignment strengthens Pakistan's position in the global marketplace, where sustainability considerations increasingly influence trade, investment, and market access. By positioning SCP as a strategic element of its economic framework, Pakistan can not only address immediate environmental concerns but also create new economic opportunities and enhance its competitive edge. Adopting a circular economy, as McKinsey (2024) highlights, could significantly contribute to economic savings and long-term sustainability through optimized resource use and waste minimisation [12].

3.3. SCP Integration Framework for Pakistan

This integration framework focuses on aligning SCP with key national policies, sectoral targets, and regional priorities to achieve comprehensive and measurable sustainability outcomes.

Integration pillar	Purpose	Guiding principles	Target alignment
National policy and strategic alignment	Embed SCP within Pakistan's overarching policies, including Vision 2025, the NDCs, LT-LEDS, and SDGs, for unified sustainability targets	• Integrate SCP goals into Vision 2025 and the NDCs to support emissions reduction, resource conservation, and resilience • Align SCP targets with LT-LEDS, focusing on decarbonisation and low-emission development for long-term climate goals • Coordinate SCP with the National Adaptation Plan (NAP) to bolster climate resilience in the agriculture, water, and energy sectors	• Emissions Reduction: Contribute to NDC targets by lowering emissions in key sectors like energy and industry • Climate Resilience: Enhance adaptation capacity in agriculture and water as outlined in the NAP • SDG Targets: Advance SDG 12 (SCP) and SDG 13 (Climate Action) with integrated SCP objectives
Sectoral policy alignment	Align SCP principles within sectoral policies, such as the Energy Efficiency and Conservation Policy, National Agriculture Policy, Textile Policy, Auto Industry Development and Export Policy and National Water Policy	• Integrate SCP within the National Agriculture Policy to advance sustainable farming practices and improve water efficiency • Embed SCP goals in the Energy Efficiency and Conservation Policy to reduce energy intensity and promote sustainable energy use • Promote SCP in the Alternative and Renewable Energy Policy 2019, aiming for a 30% renewable energy share by 2030 • Enabling a shift to cleaner vehicle technologies and reducing the sector's environmental footprint under the Auto Industry Development and Export Policy 2021-2026	• Water Efficiency: Support National Water Policy targets by promoting water-saving techniques in agriculture and urban planning • Energy Reduction: Contribute to the Energy Efficiency Policy goals by reducing energy consumption across manufacturing and industrial sectors • Renewable Energy: Help achieve the Renewable Energy Policy goal of a 30% renewable share by 2030
Provincial and regional priorities	Address regional needs by aligning SCP with provincial policies, recognising unique environmental challenges and resource constraints across provinces	• Integrate SCP in Punjab's Green Development Strategy, focusing on sustainable industrial practices and pollution control • Embed SCP goals within Sindh's Urban Development Strategy, supporting waste reduction and recycling efforts • Collaborate with Khyber Pakhtunkhwa's Climate Action Plan for renewable energy and sustainable land use	• Pollution Control: Reduce industrial emissions in Punjab to meet provincial green strategy goals • Waste Reduction: Contribute to Sindh's target for urban waste management and recycling initiatives • Renewable Energy: Align with KPK's energy strategy to increase renewable sources, like hydropower, in its energy mix

Integration pillar	Purpose	Guiding principles	Target alignment
Cross-sectoral collaboration and partnerships	Encourage public-private partnerships (PPPs) and stakeholder collaboration to drive SCP in sectors like energy, waste, and industry	• Foster PPPs for sustainable infrastructure projects in energy and waste management • Promote SCP awareness and community engagement, partnering with civil society for broader SCP adoption • Coordinate SCP goals with industry associations to foster innovation in sustainable practices	• Waste-to-Energy Targets: Collaborate with private and public sectors to implement waste-to-energy projects that align with NDC targets • Community Engagement: Meet local SCP adoption targets by raising awareness and fostering behavioural change • Sustainable Innovation: Support national SCP goals by encouraging sustainable practices through industry-led initiatives
Data-driven monitoring and accountability	Develop an accountability framework through data collection and reporting systems integrated with the Pakistan Bureau of Statistics and provincial agencies	• Establish a centralised SCP data monitoring system with sector-specific metrics for transparency and improvement • Align SCP metrics with SDG and NDC indicators, ensuring international compatibility and compliance • Require annual SCP impact assessments to adjust policies and track progress at both federal and provincial levels	• Transparency: Align data reporting with SDG 12 indicators to enhance SCP transparency • Performance metrics: Monitor SCP progress in emissions, energy use, and waste management through NDC-aligned metrics • Provincial compliance: Ensure provincial policies meet SCP standards through annual performance assessments
Industrial and manufacturing sector	Integrate SCP into industrial development and SME support frameworks to enhance material efficiency and reduce resource intensity	• Embed SCP measures within National Industrial Policy to encourage resource-efficient and cleaner production systems • Align SME development programmes with SCP to provide cleaner production incentives and technical support	• Resource Efficiency: Support reduction of raw material input per unit of output in manufacturing • SME Inclusion: Expand SCP access for small and medium enterprises across industrial clusters to align with NDC goals and promote inclusive green growth
Waste management and pollution control	Reduce material leakage and promote circular waste practices through SCP-aligned waste and pollution policies	• Align SCP with the Draft National Hazardous Waste Management Policy to ensure safe disposal, recycling, and reuse of materials • Support plastic waste initiatives and EPR through SCP strategies focused on waste minimisation and material substitution • Promote SCP in the Pakistan Clean Air Programme by reducing waste incineration and material inefficiencies	• Circular Economy: Advance material reuse and recovery aligned with CE and SCP goals • Pollution Reduction: Reduce air pollutants via cleaner materials and lower industrial waste generation • Plastic Alternatives: Encourage province-led efforts on bans and recycling through SCP-aligned national support mechanisms

Integration pillar	Purpose	Guiding principles	Target alignment
Construction and urban development	Embed SCP principles in the built environment to minimise construction waste and promote low-impact infrastructure	• Promote the use of recycled and locally sourced materials via National Housing and Urban Development Policies • Align public procurement rules and building codes with SCP to favour efficient and sustainable construction materials	• Emission Reduction: Lower GHG emissions from construction through sustainable materials • Waste Minimisation: Reduce construction and demolition waste in line with SCP principles • Green Procurement: Align procurement with SCP for urban sustainability goals
Agriculture and food systems	Enhance resource efficiency and reduce organic and food waste through SCP-aligned agricultural policies	• Integrate SCP approaches in Food Security Policy to minimise post-harvest losses and packaging waste • Promote SCP-based agro-waste reuse through composting, biogas, and circular organic waste systems	• Food Security: Reduce food waste and strengthen resilience in food systems through SCP • Organic Waste Circularity: Scale composting and biogas initiatives to align with climate-smart agriculture and SCP • Mitigation Co-benefits: Reduce methane emissions and enhance soil health through SCP-aligned agro-waste management

4. The Role of SCP in Pakistan's development

Sustainable consumption and production (SCP) offers Pakistan a powerful framework for sustainable growth. By focusing on resource efficiency, waste reduction, and sustainable practices across sectors, SCP addresses Pakistan's pressing needs for environmental resilience and economic stability. Section 4 examines how SCP can transform agriculture, industry, energy, and waste management while supporting economic resilience and fostering private-sector involvement.

4.1. Transforming key sectors with SCP

Implementing SCP practices across key sectors can help Pakistan address sector-specific challenges while creating economic opportunities and improving resource efficiency. By targeting agriculture, manufacturing, energy, and waste management, SCP can reduce environmental impact, support sustainable growth, and enhance productivity.

Agriculture

The agriculture sector uses approximately 90% of Pakistan's freshwater resources, yet inefficiencies in water use, soil degradation, and low yields constrain productivity. SCP practices such as precision irrigation and integrated pest management can significantly enhance resource efficiency. For example, switching to drip irrigation can save up to 40% in water use, a crucial improvement for water-scarce regions like Balochistan and Sindh [13][14]. Furthermore, shifting to organic and regenerative farming methods could decrease the need for imported chemical fertilisers by up to 30%, potentially saving over USD 300 million annually while boosting soil health and biodiversity [15][16]. Practices such as crop rotation and agroforestry enhance climate resilience and boost yields by up to 20% on average, providing a dual benefit of environmental and economic gains [17][18].

Manufacturing and industry

Pakistan's industrial sector consumes around 35% of the country's total energy and is responsible for significant greenhouse gas emissions (GHGs). By adopting SCP practices like energy audits, waste minimisation, and 'lean' manufacturing, industries can lower operational costs and improve profitability. In the cement industry, which is a major source of GHGs, using alternative fuels (e.g. biomass) and recycled materials can reduce emissions by up to 15% and cut material costs by around 10% [19][20]. The textile sector, which accounts for 60% of Pakistan's exports, can achieve up to 50% reductions in water use through recycling and wastewater treatment systems. These actions would align the sector with global sustainability standards and improve market competitiveness, especially in eco-conscious markets like the EU and others [21][22]. Overall, energy efficiency measures across industries could reduce Pakistan's industrial energy consumption by 20–25%, translating to billions of rupees in annual savings [23].

Energy

Pakistan's energy sector depends heavily on imported fossil fuels, accounting for over 80% of the energy mix, which makes it vulnerable to global price fluctuations. SCP encourages the diversification of energy sources to include solar, wind, and hydropower, and thus reducing dependency on imports. Expanding renewable energy sources to meet 30% of national grid demand by 2030 could save Pakistan nearly USD 5 billion in fuel costs annually while creating some 100,000 jobs in the green energy sector [24][25]. Additionally, demand-side management, such as implementing energy-efficient appliances and building energy-management systems, can reduce household and industrial energy consumption by 20–30%, thus supporting national energy security [26][27]. Such SCP practices also contribute to emissions reductions, with projections indicating potential cuts in CO_2 emissions by up to 20% under a diversified energy strategy [26].

Waste management

With urban populations growing, waste generation has surged, overwhelming current waste management infrastructure. SCP emphasises waste minimisation, material recovery, recycling, circular economy initiatives that turn waste into valuable resources, and appropriate waste-to-energy technologies For instance, Pakistan's livestock produced approximately 417.3 million tons of manure in 2018, which could generate around 26,871 million cubic metres (m^3) of biogas annually. This biogas volume corresponds to about 492.6 petajoules (PJ) of heat energy and the potential to produce over 5,500 MW of electricity []. The waste-to-energy facilities in major cities like Karachi and Lahore could generate up to 50 MW of electricity, offsetting reliance on fossil fuels and decreasing landfill use [29][30]. Furthermore, implementing comprehensive recycling programmes could divert up to 60% of municipal waste from landfills, contributing to cleaner cities and reducing environmental health risks. A shift toward circular economy practices could generate thousands of new jobs in waste processing and recycling, estimated at around 25,000 positions, with additional economic benefits from resource recovery and energy savings [31][32].

4.2. Building economic resilience through SCP

Economic resilience is crucial for Pakistan's ability to withstand global challenges such as rising resource costs, climate impact, and trade competition. By implementing SCP practices, Pakistan can stabilise its economy through reduced resource dependency, optimised production efficiency, and innovation in green technologies.

Reducing resource dependency

SCP enables Pakistan to decrease its reliance on imported resources like chemical fertilisers and fossil fuels. For example, investing in renewable energy sources and locally produced bio-based fertilisers can reduce Pakistan's exposure to volatile international prices. Shifting the agricultural sector to local bio-fertilisers has multiple benefits, such as cost savings, improved soil health, and reduced environmental impact, which cumulatively strengthen the country's trade balance and enhance local industry resilience [15][16]. Renewable energy investments, such as expanding solar and wind infrastructure, provide an added advantage by reducing Pakistan's dependency on imported fuel, thereby reducing vulnerability to global energy price fluctuations [24][25]. These measures also align with Pakistan's long-term sustainability goals by encouraging local industries to thrive independently from international market shifts.

Improving production efficiency

SCP practices – e.g. resource audits, recycling systems, and closed-loop manufacturing – enhance production efficiency. For instance, conducting energy and water audits in high-demand sectors like textiles and cement can identify potential areas for significant savings. In the cement industry, energy audits have been shown to reduce energy use by 10–20%, which not only lowers operational costs but also increases profitability [19][20]. Similarly, introducing recycling systems and optimising processes in manufacturing reduce waste and create closed-loop systems, allowing industries to reuse materials and lower production overheads. By operating more efficiently with fewer resources, industries are better equipped to face economic fluctuations and maintain consistent profit margins [21][23]. UNIDO (2024) identifies energy efficiency audits and improvements as fundamental approaches to reduce industrial energy demand, simultaneously lowering costs and emissions [33].

Encouraging innovation and technology adoption

SCP fosters innovation in renewable energy, waste management, and resource-efficient manufacturing by promoting new technology adoption and research and development (R&D). Investing in R&D for solar photovoltaic (PV) systems, water-efficient agricultural tools, and recycling technologies positions Pakistan as a leader in green innovation [26][29]. Developing local solar technology solutions for off-grid areas enhances energy accessibility, reduces costs, and contributes to national energy security. Encouraging advancements in green technology also stimulates job creation, as new industries focused on sustainable practices emerge. For example, expanding the green technology sector is projected to create thousands of jobs, supporting Pakistan's economy while fostering environmental sustainability [27][32]. Moreover, the International Labour Organization (ILO, 2024) emphasizes significant employment gains resulting from adopting sustainable technologies and practices [34].

4.3. Engaging the private sector in SCP adoption

The private sector plays a pivotal role in scaling SCP practices, driving sustainable innovation, and contributing to national sustainability targets. Governments can stimulate private sector involvement in SCP through financial incentives, public-private partnerships (PPPs), and recognition programmes that highlight sustainability leadership and best practices.

Incentivising SCP investments

Financial incentives such as **tax deductions**, **grants**, and **low-interest loans** can motivate companies to invest in SCP technologies. For example, tax breaks on energy-efficient machinery or waste management infrastructure can accelerate SCP adoption across industries. The development of a green or sustainable finance taxonomy that incorporates circular economy principles will also help channel investments towards SCP. In the manufacturing sector, a tax credit programme for companies adopting energy-saving equipment could reduce both emissions and operational costs, enhancing profitability and environmental performance simultaneously [20][23]. Establishing an **Extended Producer Responsibility (EPR)** framework further encourages companies to manage product life-cycle impact, from production to final disposal. This framework incentivises businesses to design products that are more easily recyclable and reusable, aligning with circular economy goals and reducing waste [30]. Financial incentives are crucial in high-impact sectors like textiles, where investments in water recycling and energy-efficient technologies can lead to substantial reductions in resource use and GHGs [18][21].

Developing public-private partnerships (PPPs)

Public-private partnerships enable SCP projects to leverage both public funding and private sector expertise, enhancing their scalability and sustainability. These partnerships can focus on **large-scale projects** such as waste-to-energy facilities, shared renewable energy installations, and water conservation in agriculture. For instance, collaborations to establish solar power installations in industrial zones would support SCP adoption while helping Pakistan achieve its Nationally Determined Contributions (NDCs) under the Paris Agreement. Additionally, these installations reduce operational costs for businesses and create jobs within the renewable energy sector, promoting economic and environmental resilience [24][25]. PPPs in waste management, particularly for urban centres, can also help reduce landfill dependency by integrating recycling and energy recovery systems [29][30].

Encouraging voluntary corporate commitments

Voluntary commitments from businesses to adopt sustainable practices can significantly accelerate SCP across various industries. National recognition programmes that spotlight companies excelling in SCP can set benchmarks, motivating other companies to pursue similar goals. For example, recognition programmes acknowledging sustainable practices in energy, waste management, or resource efficiency provide a competitive edge to leading companies in both domestic and international markets. Companies with strong SCP commitments gain enhanced reputational value, which can attract eco-conscious consumers and position them favourably in sustainability-oriented markets like the EU [35][36]. These programmes also encourage businesses to adopt SCP as a core strategy, facilitating sustainable industry growth and broader economic resilience [22][32].

5. Policy recommendations for integrating SCP within Pakistan's national frameworks

To position Sustainable Consumption and Production (SCP) as a pillar of Pakistan's sustainability agenda, integration within the country's existing economic, environmental, and development frameworks is crucial. This section provides strategic recommendations for embedding SCP principles into national policies, across essential sectors, and within private sector practices. This integrative approach will reinforce Pakistan's economic resilience, optimise resource efficiency, and enhance global competitiveness.

5.1. Aligning SCP with national development goals

Integrating SCP principles with Pakistan's broader development goals, especially Vision 2025, Nationally Determined Contributions (NDCs), and the Long-Term Low Emissions Development Strategy (LT-LEDS), creates a cohesive strategy for sustainable growth. SCP can serve as the operational framework to achieve these goals by optimising resources, minimising waste, and promoting sustainable growth.

Vision 2025 and SCP

Vision 2025 prioritises resource efficiency, economic resilience, and sustainable development. SCP directly supports these objectives by driving resource optimisation across water, energy, and raw materials. For example, SCP practices like water-saving irrigation in agriculture and energy-efficient processes in industry address Vision 2025's goals of sustainable resource management and economic stability. Integrating SCP into Vision 2025 initiatives can reduce water use in agriculture by up to 25% and cut industrial energy demand by 15–20% [13][42].

NDCs and LT-LEDS

Pakistan's NDCs and LT-LEDS commitments emphasise emissions reduction and climate resilience. Embedding SCP within NDC updates aligns industrial and energy efficiency with these climate goals, especially in high-impact sectors like cement and textiles. For instance, requiring SCP-driven energy audits in these sectors can support a 10–15% reduction in emissions annually. By aligning SCP with LT-LEDS, Pakistan ensures sustainable industrial growth while meeting global climate obligations [24][28].

5.2. Integrating SCP across key sectors

Embedding SCP principles within Pakistan's high-impact sectors ensures that resource efficiency, circular economy, and environmental stewardship become fundamental practices. This sector-specific integration supports both national economic growth and international sustainability standards.

Agriculture and water management

Agriculture accounts for nearly 90% of Pakistan's freshwater use, yet productivity is low because of inefficient practices. Integrating SCP in agriculture policies would support water conservation, soil health, and economic savings. Adopting precision irrigation could reduce water consumption by 30–40% in water-stressed regions like Sindh and Balochistan [14][15]. The Food and Agriculture Organization (FAO, 2024) confirms significant global experience indicating that water-efficient practices like precision irrigation substantially enhance agricultural productivity and sustainability, particularly in water-scarce regions [37]. Encouraging bio-fertilisers over chemical inputs could save the sector over USD 300 million annually while enriching soil health. Policies promoting agroforestry and crop rotation can further bolster climate resilience and increase crop yields by up to 20% [16][17].

Manufacturing and industry

SCP integration in manufacturing can significantly reduce resource use, emissions, and waste. Industrial sectors, particularly cement and textiles, should incorporate resource audits and closed-loop manufacturing into policy frameworks. For example, mandatory energy audits in the cement sector could lower energy use by up to 20%, translating to cost savings and emissions reductions [20][20]. In textiles, water recycling systems could cut water consumption by 50%, aligning Pakistan with international sustainability standards and making its exports more competitive [21][21]. Textiles industry also has significant potential in optimising the use of secondary materials, considering the fact that Pakistan is also the largest importer of textile waste. Implementing SCP as a policy requirement positions Pakistan's industrial sector to access green markets and comply with international standards.

Energy sector

Pakistan's energy sector, heavily dependent on imported fossil fuels, would benefit from SCP integration to diversify its energy mix and improve energy security. Policies supporting renewable energy, such as solar and wind, along with demand-side management measures, can reduce dependency on imports by 30% by 2030 [24][25]. Expanding renewable sources to comprise 30% of the grid could save Pakistan nearly USD 5 billion in fuel costs while creating around 100,000 green jobs [27]. Embedding SCP in energy policies would enhance resilience against global price fluctuations and reduce emissions in line with Pakistan's NDC commitments.

Waste management

Rapid urbanisation has led to increased waste generation, with current systems unable to manage the volume effectively. SCP practices like recycling, waste-to-energy, and circular economy principles should be embedded in waste policies to reduce landfill dependency. Comprehensive recycling programmes could divert 50–60% of urban waste from landfills, reducing pollution and generating approximately 25,000 jobs in the waste management sector [29][31]. Waste-to-energy projects in large cities could generate 50 MW of power, transforming waste into a valuable resource and reducing landfill requirements [30].

5.3. Integrating SCP within the private sector for national goals

The private sector's role in SCP is vital for achieving Pakistan's sustainability targets, particularly as part of NDC 3.0. Integrating SCP within the private sector helps drive innovation, improves market competitiveness, and supports Pakistan's climate and sustainability objectives.

- **Incentivising SCP through tax and policy instruments:** Financial incentives like tax credits, grants, and low-interest loans are effective tools for encouraging SCP investments. Tax breaks for energy-efficient machinery or waste management infrastructure can accelerate private-sector adoption of SCP. Extended Producer Responsibility (EPR) policies further motivate companies to consider the environmental impact of their products, particularly at the end-of-life stage, encouraging the design of recyclable and reusable products [32]. This approach ensures the private sector contributes meaningfully to national SCP goals.
- **Public recognition and benchmarking:** Recognition programmes that spotlight corporate SCP leaders can inspire broader adoption. Establishing benchmarks for SCP performance within the private sector creates competitive pressure to excel in sustainability. For instance, companies adopting SCP practices in water recycling, resource efficiency, or emissions reduction could gain a competitive advantage in international markets, especially those requiring compliance with standards like the EU's Carbon Border Adjustment Mechanism (CBAM) [35][22]. Recognition also supports reputation-building, positioning Pakistani firms favourably within sustainability-conscious markets.

5.4. Establishing a framework for SCP data and progress monitoring

A structured monitoring and reporting framework is essential to track SCP's contributions to national targets, ensuring transparency and accountability. By aligning SCP metrics with national systems, Pakistan can monitor progress and make data-driven improvements.

- **National SCP data collection and reporting:** Collaborate with agencies such as the Pakistan Bureau of Statistics to integrate SCP metrics into existing data collection processes. Mandating annual SCP reports from key industries, including energy, manufacturing, and agriculture will create a transparent record of SCP progress and impact [26[30]. Metrics should include resource efficiency gains, emission reductions, and waste management improvements, with results made publicly available to ensure transparency.
- **Benchmarking and international alignment:** Align SCP metrics with international sustainability benchmarks to ensure Pakistan's SCP progress is globally recognised. By benchmarking SCP goals against global standards, Pakistan can attract investment and enhance its standing in international sustainability rankings. This international alignment will also help Pakistan meet global trade requirements and attract sustainability-driven investors [31][32].

6. Sample sectoral analysis: Practical SCP applications and benefits

6.1. Textile Industry: Water and energy efficiency, resource optimisation, and circular practices

The textile industry is a crucial driver of Pakistan's economy, contributing 8.5% to the GDP and accounting for nearly 57% of total exports [38][39]. However, it is one of the most resource-intensive sectors, consuming about 270 billion litres of water annually and significant amounts of energy, particularly in dyeing and finishing processes, which require intensive heating and cooling [39][40]. Additionally, textile production results in substantial wastewater discharge containing toxic dyes, heavy metals, and other chemicals, which can leach into rivers and groundwater, posing risks to both ecosystems and public health [40].

SCP offers a pathway to mitigate these impacts through **water recycling systems** that can reduce water use by up to 50% within textile production. Closed-loop systems capture, treat, and reuse water onsite, significantly lowering overall water demand and reducing pollution discharge [39]. For energy efficiency, upgrading equipment, using heat recovery systems, and integrating renewable energy sources like solar can cut energy use by 15–30%, which has been shown by the International Finance Corporation (IFC) to reduce operational costs while minimising emissions [41]. By incorporating **circular economy practices** such as repurposing textile waste, the industry can address the issue of the estimated 16 million tonnes of textile waste generated annually, turning it into new products or raw materials. This recycling not only conserves resources but also aligns with international sustainability standards, which improves the sector's competitiveness in eco-conscious markets [42][43]. SWITCH-Asia (2024) provides extensive case studies demonstrating the efficacy and benefits of adopting sustainable production practices in textile manufacturing across Asia [44].

6.2. Cement industry: Adoption of alternative fuels, carbon management, and SCP approaches

Pakistan's cement industry is a major source of greenhouse gas emissions (GHGs), accounting for about 6.2% of the country's total emissions because of reliance on fossil fuels and the energy-intensive nature of cement production [45][46]. As infrastructure development grows, cement production is expected to increase, with the industry currently consuming over 12 million tonnes of coal annually [46]. This high dependency on fossil fuels leaves a significant environmental footprint and contributes to air pollution and public health risks.

SCP strategies for the cement industry include **substituting alternative energy sources** like biomass and waste-derived fuels to replace fossil fuels. For instance, replacing 10% of the energy mix with biomass could reduce coal consumption by over 1 million tonnes annually, yielding considerable emissions reductions and lowering fuel costs [47]. These results align with the International Energy Agency's (IEA, 2024) strategies highlighting alternative fuels and energy-efficient processes for significant industrial emissions reductions [48]. The sector can also implement **energy-efficient kiln technologies** and optimised production processes, which can reduce energy consumption by 10-20%, as shown by studies from the Global Cement and Concrete Association [490]. Furthermore, SCP encourages the use of **supplementary cementitious materials** like fly ash and slag, which can substitute a portion of clinker in cement production, reducing the need for virgin raw materials and significantly lowering the carbon intensity of the final product [50]. These SCP initiatives align with international green building standards, positioning Pakistan's cement industry as a potential leader in sustainable construction.

6.3. Waste management: Circular Economy approaches, waste-to-energy, and SCP benefits beyond emissions reduction

With rapid urbanisation, Pakistan now produces over 48.5 million tonnes of solid waste annually, with about 40% remaining uncollected [51]. This unmanaged waste pollutes air, water, and soil, and contributes to greenhouse gas emissions from landfill methane. Current reliance on landfills is unsustainable, with limited capacity and high environmental costs.

SCP introduces a **circular economy model** that emphasises waste reduction, recycling, and resource recovery. Recycling programmes not only reduce demand for virgin materials but also create jobs; it is estimated that every 1,000 tonnes of recycled material generates 10 jobs in waste collection, processing, and distribution [52]. **Composting organic waste** represents another SCP-driven solution, as it converts organic waste into valuable fertiliser, reducing the need for chemical fertilisers in agriculture and supporting soil health [53]. Additionally, **waste-to-energy projects** using anaerobic digestion allow for biogas production from organic waste, which can generate renewable electricity and reduce Pakistan's dependence on imported fuels [54]. The World Bank (2024) further confirms significant potential and economic viability for waste-to-energy initiatives across urban regions in Pakistan [55]. Integrating SCP into waste management can therefore not only reduce pollution but also create new economic opportunities and support sustainable urban development.

6.4. Building materials (steel, bricks, etc.): Sustainable construction practices, green materials, and sector transformation

The construction materials sector, including steel, bricks, and concrete, is fundamental to Pakistan's infrastructure development but is also resource- and energy-intensive. For instance, traditional brick kilns consume over 12 million tonnes of coal annually, contributing to significant air pollution and deforestation [56]. SCP in construction encourages sustainable practices that reduce energy use, emissions, and waste, while enhancing building durability.

Zigzag kilns in brick production, for example, reduce coal use by up to 40%, offering both cost savings and emissions reductions [57]. In the steel industry, energy efficiency measures and using recycled materials can reduce energy demand by up to 75% compared to using raw materials, making the process more sustainable and cost-effective [58]. SCP also promotes the development and adoption of **green building materials** that are both durable and eco-friendly, aligning with the global shift toward green infrastructure. By adopting these practices, Pakistan's construction materials sector can reduce its carbon footprint, meet domestic and international demand for sustainable construction, and create a market niche within the global green building trend [59].

6.5. Brief overview of additional sectors

Agriculture: Agriculture is responsible for roughly 39% of Pakistan's greenhouse gas emissions and uses 90% of its freshwater resources [38][39]. SCP practices like **precision irrigation** and **bio-fertilisers** can reduce water use by up to 50% while lowering input costs and preserving soil health. Techniques like no-till farming, which can reduce soil erosion by 95%, also enhance crop resilience and productivity [60].

Energy: With over 60% of Pakistan's fossil fuels being imported, the energy sector faces high economic and environmental costs [24]. Transitioning to **solar and wind energy**, given Pakistan's 5.5–7 kWh/m² solar irradiation and 340 GW of wind potential, can reduce costs by 20–30% and emissions by 60% [61][62]. Such a shift also builds energy independence, stabilising energy costs for Pakistan's economy.

Transportation: Accounting for 22% of Pakistan's GHGs and 43% of its oil consumption, the transportation sector is a critical area for SCP integration [63]. Promoting **public transit**, **electric vehicles (EVs)**, and efficient logistics can reduce oil dependency by 10–15%, and emissions by up to 50% [64]. These shifts would also improve urban air quality, with associated public health benefits.

Mining and Natural Resources: Mining contributes significantly to GDP but has a negative environmental impact, as it is responsible for deforestation, water pollution, and habitat loss [65]. SCP encourages **responsible mining practices** such as water recycling and land reclamation, which can reduce water consumption by 50% and lower fuel costs by 25%, helping to minimise ecological degradation [66].

7. Conclusion and call to action

Integrating sustainable consumption and production (SCP) principles offers Pakistan a transformative pathway to achieve a resilient, resource-efficient economy. By embedding SCP into frameworks like Vision 2025, Nationally Determined Contributions (NDCs), and a Long-Term Low Emissions Development Strategy (LT-LEDS), Pakistan can align its economic and environmental objectives. This alignment addresses resource scarcity, reduces emissions, and strengthens international competitiveness, positioning SCP as foundational to the nation's sustainable-growth strategy. With committed, coordinated efforts across all sectors, Pakistan can achieve these goals, fostering sustainable prosperity for present and future generations [381][39].

7.1. Summary of key integration recommendations

This White Paper provides a roadmap for integrating SCP, focusing on harmonising SCP with Pakistan's economic and environmental frameworks. By embedding SCP principles into sectoral and national policies, Pakistan can increase resource efficiency, create green jobs, and support sustainable industrial growth. Key recommendations for integration include:

1. Embedding SCP in national policies and frameworks

SCP should be incorporated within national strategies like Vision 2025, NDCs, and LT-LEDS. This approach positions SCP as a core element, guiding economic development and sustainability efforts. Embedding SCP targets and indicators within these frameworks ensures that sustainability becomes a foundational aspect of Pakistan's economic trajectory, providing benchmarks for accountability and progress [40][41].

2. Fiscal incentives and regulatory support for SCP

By aligning tax breaks, green financing, and procurement policies with SCP objectives, the government can foster SCP adoption across sectors. Embedding fiscal incentives within existing regulatory frameworks makes SCP investments financially viable for industries, promoting a competitive, low-emission economy. For example, tax deductions for energy-efficient equipment and low-interest loans for green technologies can drive industry-wide shifts toward sustainability [42][43].

3. Strengthening institutional capacity and data systems

Establishing an SCP Coordination Body and integrating data tracking systems can facilitate SCP alignment and ensure data-driven policymaking. Reliable data on resource use, emissions, and other SCP indicators will allow for evidence-based adjustments, ensuring SCP integration aligns with Pakistan's development and climate goals. Such systems can also support international reporting obligations, enhancing transparency and accountability [45][46].

4. Engaging the private sector and raising public awareness

Private sector partnerships and public awareness campaigns are critical for SCP's long-term integration. Engaging the private sector to align SCP with corporate strategies allows businesses to drive innovation, reduce environmental impact, and remain competitive. Public awareness initiatives, meanwhile, can foster a culture of sustainability, empowering citizens to make informed choices about consumption and resource use [47].

5. Leveraging international cooperation and funding

Integrating SCP within international collaborations, such as the EU's Carbon Border Adjustment Mechanism (CBAM) and Green Climate Fund (GCF), allows Pakistan to access funding and align its standards with global markets. Engaging in international partnerships also facilitates knowledge-sharing, enabling Pakistan to benefit from global best practices in SCP [49][50].

7.2. Call to action: Collective roles in SCP integration

The successful integration of SCP requires coordinated efforts across government, the private sector, communities, and international partners. Each stakeholder group has a unique role to play in embedding SCP into Pakistan's development strategy.

Government leadership and policy integration

1. *Embed SCP across governance levels*: National, provincial, and local governments should incorporate SCP principles within their planning frameworks, creating a supportive environment for SCP adoption. Embedding SCP policies within development plans at all levels strengthens alignment with Vision 2025 and NDCs, ensuring a unified approach to sustainability [38][51].
2. *Strengthen regulatory enforcement and accountability*: Effective SCP integration requires regulatory enforcement mechanisms that ensure compliance. Establishing monitoring and evaluation systems supports data-driven policy refinement, enhancing transparency and accountability in SCP progress tracking [45].
3. *Green procurement policies*: Embedding green procurement standards within government agencies will stimulate demand for SCP-compliant products, driving a market shift toward sustainable goods and services. This demand from public sector procurement can set a standard for the private sector, encouraging broader SCP integration [52]. According to the ILO (2024), circular economy initiatives like comprehensive recycling programmes can create significant new employment opportunities, further supporting economic resilience [66].

Private sector engagement in SCP integration

1. *Align corporate strategies with SCP*: Integrating SCP within corporate strategies positions companies to reduce costs, increase resource efficiency, and gain competitive advantages in sustainability-sensitive markets. By aligning business goals with SCP principles, companies can support national sustainability targets while building resilience in a resource-constrained world [53][54].
2. *Foster innovation in sustainable practices*: Companies should be encouraged to adopt SCP practices such as circular economy models, low-emission technologies, and energy efficiency, which can enhance profitability and brand reputation. Such innovations contribute to SCP while building long-term resilience and market competitiveness [56].
3. *Engage in public-private partnerships (PPPs)*: By forming partnerships that align business interests with SCP objectives, companies can benefit from government incentives while contributing to sustainable infrastructure projects, such as renewable energy or waste management facilities, enhancing the impact of SCP on economic development [49].

Community engagement and public awareness

1. *Promote SCP awareness and education*: Educational institutions, community organisations, and civil society should promote SCP awareness and encourage responsible consumption. Public awareness campaigns can empower individuals to make choices that reduce resource consumption and waste, aligning public behaviour with SCP objectives [57].
2. *Support community-led initiatives*: Local projects in waste management, water conservation, and energy efficiency offer practical examples of SCP integration. Small grants, technical support, and recognition programmes can amplify these initiatives, fostering a grassroots shift toward sustainable practices [58].
3. *Empower youth and local champions*: Youth engagement and local champions are essential for embedding SCP values in communities. Programmes that position young people as SCP advocates can accelerate cultural shifts toward sustainable consumption, establishing long-term sustainability habits [59].

International alignment and funding access

1. *Pursue global funding and technical support*: Government and private sector stakeholders should seek funding from international sources, such as the Green Climate Fund (GCF) and Global Environment Facility (GEF). These funds support SCP-aligned projects in renewable energy, waste management, and water conservation, enhancing SCP integration across sectors [60][61].
2. *Align with international sustainability standards*: Compliance with standards such as ISO 14001 and the carbon border adjustment mechanism (CBAM) can increase Pakistan's access to international markets, attract foreign investment, and improve the country's sustainability profile. Aligning SCP initiatives with these standards ensure that Pakistan remains competitive in global trade [49].
3. *Engage in regional SCP networks*: Participating in regional initiatives, like SWITCH-Asia, allows Pakistan to share best practices, access funding, and build SCP capacity. These collaborations strengthen SCP integration by facilitating joint projects and knowledge-sharing with neighbouring countries [62].

7.3. Vision for Pakistan's sustainable future

By embedding Sustainable Consumption and Production principles within a national development strategy, Pakistan can build a resilient economy, improve environmental health, and enhance the quality of life for all citizens. SCP provides a framework to meet development goals within ecological limits, securing resources for future generations. With strong leadership, robust partnerships, and a shared commitment to sustainability, Pakistan can position itself as a regional leader in SCP and contribute to global sustainability efforts. The journey to sustainable prosperity begins with integrating SCP; as outlined in this White Paper; into the fabric of Pakistan's development choices today, setting the stage for a sustainable future.

References

[1] Government of Pakistan, Pakistan Economic Survey, 2022-23. www.finance.gov.pk
[2] United Nations Environment Programme, Global Resources Outlook, 2019. www.unep.org
[3] Germanwatch, Global Climate Risk Index, 2021. www.germanwatch.org
[4] Government of Pakistan, Climate Change Profile of Pakistan, Ministry of Climate Change, 2020. www.mocc.gov.pk
[5] UN News, Pakistan Floods 2022. www.news.un.org
[6] World Resources Institute, Aqueduct Projected Water Stress, 2019. www.wri.org
[7] Asian Development Bank, Climate Change and Water Resource Management in Pakistan, 2020. www.adb.org
[8] International Energy Agency, Pakistan Energy Outlook, 2021. www.iea.org
[9] Government of Pakistan, National Action Plan on Sustainable Consumption and Production (NAP-SCP), Ministry of Climate Change, 2017. www.mocc.gov.pk
[10] Government of Pakistan, Updated Nationally Determined Contribution, Ministry of Climate Change, 2021. www.mocc.gov.pk
[11] SWITCH-Asia, Sustainable Consumption and Production in Pakistan, Policy Support Component, 2023. www.switch-asia.eu
[12] Planning Commission of Pakistan, Annual Plan 2022-23. www.pc.gov.pk
[13] Ministry of Planning, Vision 2025 Document. www.pc.gov.pk
[14] Government of Pakistan, Pakistan's National Sustainable Development Strategy. www.mocc.gov.pk
[15] Pakistan Bureau of Statistics, HIES Report 2021. www.pbs.gov.pk
[16] State Bank of Pakistan, Financial Stability Review 2021. www.sbp.org.pk
[17] UNDP Pakistan, Development Advocate Pakistan, 2022. www.undp.org
[18] Government of Pakistan, National Electric Vehicle Policy. www.mocc.gov.pk
[19] Pakistan Environmental Protection Agency, NEQS Annual Report. www.environment.gov.pk
[20] UN-Habitat, Urbanization Trends and Policies in Pakistan, 2020. www.unhabitat.org
[21] WWF Pakistan, Environmental Impacts of the Textile Sector, 2019. www.wwfpak.org
[22] ILO Pakistan, Green Jobs Assessment Report, 2021. www.ilo.org
[23] UNESCAP, Low Carbon Development in South Asia, 2018. www.unescap.org
[24] FAO, Sustainable Agriculture in Pakistan, 2020. www.fao.org
[25] Government of Pakistan, National Water Policy, Ministry of Water Resources, 2018. www.pakwrc.gov.pk
[26] Ministry of Climate Change, Guidelines for Green Infrastructure, 2021. www.mocc.gov.pk
[27] Asian Development Bank, Pakistan: Country Partnership Strategy, 2021-2025. www.adb.org
[28] UNEP, Circular Economy in Pakistan, 2022. www.unep.org
[29] UNDP & MoCC, Climate Public Expenditure Review, 2021. www.undp.org
[30] IRENA, Renewable Energy Market Analysis: Pakistan, 2022. www.irena.org
[31] Pakistan Council of Renewable Energy Technologies, Annual Report, 2020. www.pcret.gov.pk
[32] Government of Pakistan, Pakistan Electric Vehicles Policy, 2020. www.mocc.gov.pk
[33] UNESCAP, Sustainable Urban Transport Index Report, 2021. www.unescap.org
[34] World Bank, Enhancing Energy Efficiency in Pakistan, 2019. www.worldbank.org
[35] Pakistan Alternative Energy Board, Solar PV Outlook, 2022. www.aedb.org
[36] Government of Pakistan, National Waste Management Policy, 2021. www.mocc.gov.pk
[37] LEAD Pakistan, Policy Brief on SCP in Pakistan, 2020. www.lead.org.pk
[38] Pakistan Institute of Development Economics, Sustainable Development Report, 2019. www.pide.org.pk
[39] OECD, Green Growth Indicators: Pakistan, 2020. www.oecd.org
[40] Government of Pakistan, National Disaster Risk Reduction Policy, 2013. www.ndma.gov.pk
[41] UNDP, Gender and Climate Change in Pakistan, 2021. www.undp.org
[42] WaterAid Pakistan, Access to Clean Water and Sanitation, 2020. www.wateraid.org
[43] UNICEF, Children and Climate Risks in Pakistan, 2022. www.unicef.org
[44] World Bank, Pakistan Country Climate and Development Report, 2023. www.worldbank.org

[45] ICIMOD, Climate Change Impacts in the Himalayas, 2020. www.icimod.org
[46] UNFCCC, National Communications from Pakistan, 2022. www.unfccc.int
[47] Pakistan Bureau of Statistics, PSLM Survey 2020-21. www.pbs.gov.pk
[48] Pakistan Ministry of Industries, Industrial Policy Review, 2021. www.moip.gov.pk
[49] NCEG, National Climate Education Guidelines, 2022. www.moe.gov.pk
[50] Sustainable Development Policy Institute, SCP & Climate Interface Report, 2023. www.sdpi.org
[51] Pakistan Business Council, Industrial Decarbonization Roadmap, 2022. www.pbc.org.pk
[52] MoCC & UNDP, Nature-Based Solutions in Pakistan, 2021. www.mocc.gov.pk
[53] Pakistan Green Stimulus Programme Report, 2021. www.mocc.gov.pk
[54] APN, Science-Policy Dialogue Report on Climate Change, 2022. www.apn-gcr.org
[55] Pakistan Council of Research in Water Resources, Groundwater Study, 2020. www.pcrwr.gov.pk
[56] Pakistan Poverty Alleviation Fund, Community Resilience Report, 2021. www.ppaf.org.pk
[57] World Economic Forum, Global Risk Report 2022. www.weforum.org
[58] International Monetary Fund, Climate Macroeconomics Outlook for Pakistan, 2022. www.imf.org
[59] GIZ, Mainstreaming Climate into Local Planning in Pakistan, 2021. www.giz.de
[60] Asian Development Bank, Enabling SCP in SMEs in Pakistan, 2023. www.adb.org
[61] ICLEI, Urban Climate Action in Pakistan, 2021. www.iclei.org
[62] Pakistan Ministry of Finance, Green Budgeting Guidelines, 2022. www.finance.gov.pk
[63] UNESCAP, Asia-Pacific SDG Progress Report 2022. www.unescap.org
[64] SEED, Innovation in Waste Management: Pakistan Case Study, 2023. www.seed.org.pk
[65] Pakistan Climate Change Council, Climate Governance Update, 2023. www.mocc.gov.pk
[66] IRENA, Decentralized Renewable Energy Solutions in South Asia, 2023. www.irena.org
[67] PFAN, BIOGAS: An Overlooked Piece in the Renewables Puzzle in Pakistan, 2023 www.pfan.net

switchasia

Funded by
the European Union

www.switch-asia.eu

EU SWITCH-Asia Programme
@EUSWITCHAsia

SWITCH-Asia
@SWITCHAsia

SWITCH-Asia Official
@switch-asia-official