

CAMBODIA'S PATH TO SUSTAINABILITY:

Accelerating National Priorities through Climate Actions

This report was developed by UNDP's Cambodia Country Office and the Inclusive Growth team.

See also the associated reports:

<u>Integrated SDG Insights Cambodia</u> | UNDP's Integrated SDG Insights explore how to achieve the SDGs by 2030.

Integrated NDC x SDG Insights Cambodia | This initiative explores the NDC-SDG impact and leverages data, systems and finance analysis to pinpoint policy accelereators tailored to national context and sustainable development vision.

About UNDP

UNDP is the leading United Nations organization fighting to end the injustice of poverty, inequality, and climate change. Working with our broad network of experts and partners in 170 countries, we help nations to build integrated, lasting solutions for people and planet. Learn more at undp.org or follow @UNDP.

How to cite this report

UNDP (2025). Cambodia's Path to Sustainability: Accelerating National Priorities through Climate Actions. Phnom Penh, Cambodia and New York, NY, USA.

Contents

Executive Summary	4
1. National Development Priorities Promoting Long-Term Economic Growth (SDG 8) Resilient Infrastructure and Innovation (SDG 9) Reduced Inequalities (SDG 10) Inclusive and Resilient Urban Spaces (SDG 11) Good Governance and Strong Civil Society (SDG	7 7 8 8 9 16) 9
2. Climate Action Priorities Affordable and Clean Energy Make Cities and Human Settlements Inclusive, etc.	10 10 10
3. NDC x SDG Alignment and Interlinkages Increase Renewable Energy in National Mix Modernize Energy Grid Enhance Energy Efficiency Foster Sustainable Urban Development Promote Sustainable Urban Mobility Improve Waste Management for Sustainable Citie Increase Private-Sector Financing for Projects	12 13 19 22 25 25 27
4. Finance and Stimulus Public Finance Private Finance	35 35 37
References Annex: Methodology	39 40



Executive Summary

The development of Cambodia's third generation of Nationally Determined Contributions (NDC 3.0) provides a strategic opportunity to align climate policy with the Sustainable Development Goals (SDGs) so that climate action becomes a catalyst for economic and social progress. Through the integration of national development priorities into climate planning, Cambodia can address urgent vulnerabilities, while advancing long-term goals such as job creation, infrastructure modernization, resilient and inclusive urban spaces and social equity.

It emphasizes the importance of integrating climate actions into national development strategies to achieve sustainable growth. It is through these synergies that development breakthroughs can be realized.

To guide this policy alignment, this report employs the **SDG Push Diagnostic**, a suite of tools designed to help national stakeholders identify key priorities for accelerated development gains. This report analyses the priorities in Cambodia's strategic development and climate documents and identifies key synergies, gaps and opportunities for integrated action. While identifying specific climate change activities is essential for SDG progress, it would remain insufficient without a national consensus on the necessary measures for effective implementation. Nonetheless, this analysis can serve as a valuable input during the elaboration of NDC3.0 and sectoral discussions.

We find partial alignment between Cambodia's development strategies, including the Pentagonal Strategy-Phase I and the Cambodia SDGs (CSDGs), and global commitments through the SDGs and NDC. Simultaneously, our findings reveal alignment between the SDGs and existing mitigation and adaptation measures under NDC2.0, forming a foundation for substantial impact through NDC 3.0.

Specifically the priorities emerging from the National Development and Climate documents are as follows:

National Development Priorities

- **SDG 8:** Focus on private sector growth, entrepreneurship, and job creation for youth, with specific support for high-value-added industries and MSMEs.
- **SDG 9**: Modernize transport systems, logistics, and energy grids while fostering digital economy and industrial innovation.
- **SDG 10**: Strengthen social protection, address rural-urban disparities, and empower women and vulnerable groups.
- **SDG 11**: Promote urban resilience through affordable housing, climate-smart urban planning, and sustainable infrastructure.
- **SDG 16**: Enhance governance through transparent, inclusive policy reforms and efficient service delivery.

National Climate Action Priorities

- Expand renewable energy to 25% of the energy mix by 2030 and 35% by 2050, including solar, wind, and hydropower investments.¹
- Emphasize urban sustainability through green infrastructure, climate-resilient housing, waste management, and mobility solutions like public transit and EVs.
- Promote energy efficiency through green building codes, retrofitting, bio-digesters, and energy-efficient appliances.
- Foster innovation in circular economy models, composting, and waste valorization, particularly in urban areas.

Through an analysis of the interlinkages between the two sets of priorities, we identify the strategic options for climate accelerators for the most prominent development priorities. These include:

- Investments in renewable energy drive productivity, job creation (SDG 8), and infrastructure resilience (SDG 9).
- Urban sustainability efforts link green spaces, public transport, and disaster risk reduction with inclusive urban growth (**SDG 11**).
- Climate-resilient rural and social infrastructure supports equitable service access for vulnerable populations (SDG 10).

The implementation of some of the key mitigation and adaptation activities from NDC2.0 would require a cross-sectoral approach, which engages stakeholders across government and the private sector. Key areas include:

- Increase private-sector financing for climate projects through public-private partnerships and operationalizing climate finance databases.
- Strengthen community resilience with smallholder farmer incentives, WASH infrastructure, and nature-based solutions.
- Update education curricula to integrate STEM, clean energy, and climate-smart technologies for workforce readiness.

Key Recommendations

- Scale renewable energy uptake and modernize infrastructure for low-carbon growth.
- Expand climate-resilient and adaptive social protection for marginalized populations.
- Promote green innovation and entrepreneurship across waste management and sustainable industries.
- Enhance institutional capacities for national and local climate integration with stakeholder engagement.

1. National Development Priorities



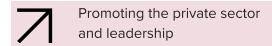
Pentagonal Strategy - Phase I

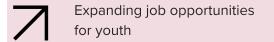


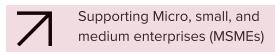
Pentagonal Strategy & Cambodia SDG Framework Combined

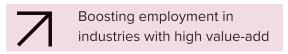


Promoting Long-Term Economic Growth (SDG 8)









Cambodia has recently adopted the national roadmap for accelerating decent jobs and social protection, supported by the UN Global Accelerator on Jobs and Social Protection for Just Transitions.² It focuses on identifying growth sources and prioritizing sectors for inclusively enhancing employability and skills development, prioritizing youth through enhanced vocational training and education, linking skills development directly to market needs and strengthening social protection for all³. It also advocates for fostering business resilience and competitiveness, working with the private sector to promote entrepreneurship, economic diversification, and resilience, emphasizing the role of micro, small, and medium enterprises (MSMEs) as engines of growth and employment⁴. Developing the informal sector is also high on the national agenda to strengthen the informal economy, enabling it to grow and contribute to the nation's economic development and human wellbeing.⁵ Boosting employment in high-value-added industries, particularly those driven by technology and innovation, is critical for achieving sustainable development. These efforts align with the national objective to create decent jobs and increase productivity while fostering inclusive labor markets.





Resilient Infrastructure and Innovation (SDG 9)



Building and upgrading transparent infrastructure



Promoting the digital deconomy



Strengthening logistics ans supply chain systems



Urban modernization and smart cities initiatives

Key priorities include building and upgrading resilient transport infrastructure to improve regional connectivity, modernize logistics, serve special economic zones (SEZs) and support trade. With population growth and urbanisation, urban modernization and smart city considerations have increased in importance to balance urban expansion with sustainability, integrating innovative technologies across urban planning⁶. The country leapfrogged during COVID in embracing digital economy to foster broader access to e-commerce and technology-driven solutions. This will complement efforts in strengthening supply chain systems for economic efficiency and boosting economic diversification. These steps collectively create a foundation for sustainable development and economic growth.



Reduced Inequalities (SDG 10)



Enhancing social protection systems



Addressing rural-urban disparities in services



Promoting gender equality and women's empowerment

Cambodia's social protection system was significantly expanded to safeguard marginalized and at-risk households. Its current priorities include strengthening the system in terms of delivery, checks and balances, transparency, digitalization and M&E; and expanding its coverage breaking the silos between its packages for more complementarity and impact. Addressing rural-urban disparities in access to basic infrastructure, healthcare, and education services is critical for ensuring inclusive development, leaving no one behind. Gender equality and women's empowerment remain central and feature prominently in policies to close the gender gap in employment, representation, and economic participation. They also recognize the need for creating opportunities for vulnerable groups, including rural communities, women, the elderly, and persons with disabilities.





Inclusive and Resilient Urban Spaces (SDG 11)



Developing sustainable urban infrastructure



Promoting climate-resilient urban planning



Supporting sustainable rural development

The Pentagonal Strategy Phase 1 2024-2028, which sets the strategic development ambition of the Kingdom, prioritises people, roads, water, electricity, and technology. Thus, developing sustainable urban infrastructure is central, prioritising the modernization of housing, transport, water and energy systems to enhance urban living standards. Efforts are ongoing to integrate climate considerations in urban planning, including disaster risk reduction and environmental management into city development strategies. Community disaster risk management and preparedness plans are progressively being developed, and rural development is gaining priority to ensure balanced progress, reducing rural-urban migration pressures and fostering resilient human settlements.



Good Governance and Strong Civil Society (SDG 16)



Enhancing governance and public service efficiency



Strengthening stakeholder engagement and partnerships



Promoting rule-based foreign and domestic policy

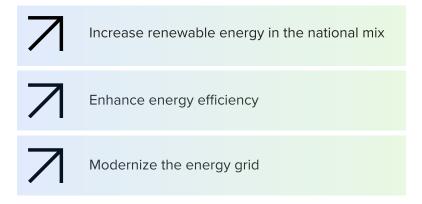
Cambodia puts good governance at the heart of its ambition for development as stated in the Pentagonal Strategy Phase I 2024-2028. Accordingly, it is implementing an institutional reform to enhance efficiency, transparency and service quality. In this connection, strengthening stakeholder engagement and public-private partnerships are essential to ensuring inclusive and democratic processes and quality services. Also, promoting rule-based foreign and domestic policy underpins stability and trust in the government's capacity to deliver on its commitments.

2. Climate Action Priotities



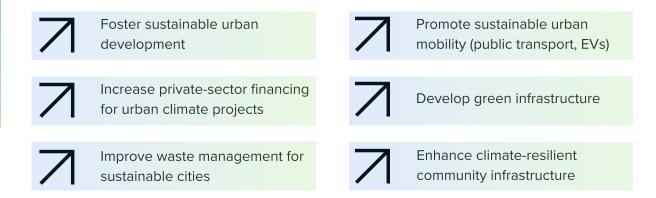
Based on: NDC (2021), NDC Implementation Stocktake, NDC Financial Stocktake, Climate Change Strategic Plan, Long-Term Strategy for Carbon Neutrality, Circular Strategy on Environment

Affordable and Clean Energy



Cambodia's approach to SDG 7 emphasizes increasing renewable energy in the national mix, as set out in the Cambodia Power Development Master Plan 2022-2040 and reconfirmed in the CCCSP 2024-2033, focusing on scaling up solar, wind, and hydropower integration to reduce fossil fuel dependency and GHG emissions. Equally important, the enhancement of energy efficiency targets wastage reduction across industries, residential buildings, and transport through energy-saving technologies and regulatory incentives. Additionally, modernizing the energy grid is highlighted in the Long-Term Strategy for Carbon Neutrality 2050 as a critical measure to support the renewable energy transition, improve grid reliability, and ensure resilience against climate impacts.

Make Cities and Human Settlements Inclusive, Safe, Resilient, and Sustainable



To achieve SDG 11, Cambodia prioritizes fostering sustainable urban development, with the CCCSP 2024-2033 emphasizing climate-smart urban planning, expanding green zones, and pursuing nature-based solutions to reduce urban vulnerabilities and enhance resilience. Equally critical is promoting sustainable urban mobility, as the Long-Term Strategy for Carbon Neutrality 2050 highlights the expansion of public transit networks and EV infrastructure to lower transportation emissions and improve accessibility.

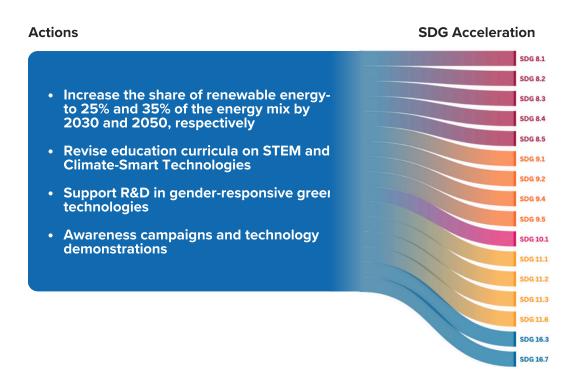
The strategy also focuses on improving waste management, strengthening urban recycling systems and reducing waste generation for sustainable city development. Furthermore, the Circular Strategy on Environment also emphasizes sustainable urban development, climate change adaptation measures, and promoting green infrastructure.



3. NDC x SDG Alignment and Interlinkages

Cambodia's pursuit of the Sustainable Development Goals (SDGs) and its Nationally Determined Contributions (NDCs) under the Paris Agreement are closely interlinked, reflecting a shared commitment to inclusive, resilient, and low-carbon development. Aligning SDG targets with climate priorities enhances policy coherence and ensures climate action simultaneously advances socioeconomic goals such as poverty reduction, job creation, gender equality, and sustainable infrastructure. This section explores the synergies between Cambodia's development priorities and climate actions identified in the previous sections, highlighting how integrated approaches can maximize development impact while accelerating progress toward both global agendas. The following subsections provide an in-depth overview of climate actions and their relation to SDG targets, followed by recommendations to support the realisation of climate actions and consequently the realisation of SDG targets.

3.1 Increase Renewable Energy in National Mix



Cambodia's climate priorities present a clear pathway to advancing Sustainable Development Goal (SDG) Targets 8.2, 8.3, and 8.5. These targets collectively emphasize the promotion of higher economic productivity, decent job creation, inclusive entrepreneurship, and full, productive employment for all. Integrating climate-resilient policies with national development planning is crucial to achieving inclusive and sustainable economic transformation.

SDG Acceleration: The national roadmap to increase the share of renewable energy (RE)— including solar, wind, hydro, and biomass—to 25% of the energy mix by 2030 and 35% by 2050 directly supports economic diversification and technological upgrading (SDG 8.2). These investments will enhance productivity across energy, agriculture, and industry sectors, while creating new markets for innovation-driven enterprises and allowing industries to meet their climate commitments required for access to important markets, such as the European market. **Potential trade-offs:** Yet, without targeted skills development, the energy shift may create jobs that are temporary, low-wage, or inaccessible to vulnerable groups, limiting progress toward decent and inclusive employment (SDG 8.5).

National level operationalization:

- **Ministry of Mines and Energy (MME)** Facilitate regulatory frameworks to attract investment in renewable energy and explore modernizing the grid for more stability efficiency, reliability, resilience, and capacity of accommodating diverse energy sources, including renewables.
- **Ministry of Economy and Finance (MEF)** Design financial incentives, subsidies, and budget allocations to support renewable energy investments and grid modernization. Mobilize public and private financing, including green bonds and international climate funds.
- Ministry of Industry, Science, Technology and Innovation (MISTI) Promote technological
 upgrading and innovation in renewable energy technologies and supporting industries. Support
 R&D and capacity building to enhance gender-responsive green technologies and productivity
 in energy, agriculture, and industrial sectors and support access to finance and incubation for
 relevant MSMEs. The role of Khmer Enterprise is key in developing the ecosystem. Collaborate
 with the Ministry of Education, universities and academic institutions, and the Ministry of Labour
 and Vocational Training to include STEM and Climate-Smart Technologies in educational and
 TVET curricula.
- Ministry of Agriculture, Forestry and Fisheries (MAFF) Support low carbon agricultural development, promoting sustainable practices (ex. avoiding slash and burn agriculture), solar energy for water pumping and agro-industries and related logistical chain.
- **Ministry of Environment (MoE)** Ensure environmental sustainability and compliance of renewable energy projects. Monitor impacts and promote nature-based solutions in energy development. Implement awareness campaigns and technology demonstrations for nature-based and environmentally sustainable solutions.
- Ministry of Planning (MoP) Coordinate national planning efforts to align renewable energy goals with broader economic diversification strategies and SDG targets. Track progress and evaluate outcomes.

SDG Acceleration: Efforts to expand green building codes, promote climate-smart construction, and develop sustainable public infrastructure offer practical entry points for enterprises to enter high-value, low-carbon sectors (SDG 8.3). Integrating these measures into Commune Investment Plans and sustainable housing initiatives provides opportunities for local businesses and Medium-to-Small Entreprises (MSMEs), particularly in construction and engineering, and energy efficiency services, to grow and formalize.

Potential Trade-offs: Efforts to climate-proof solar and hydropower infrastructure in Cambodia may require additional land and investments (SDG 8.4), particularly in areas with environmental sensitivity or infrastructure constraints. While such investments can support job creation, ensuring that employment opportunities are inclusive, stable, and equitably distributed (SDG 8.5) will require proactive capacity-building and skills development to enable broader participation across regions and social groups.

National level operationalization:

- Ministry of Land Management, Urban Planning and Construction (MLMUPC) Lead the
 development and enforcement of green building codes and climate-smart construction
 standards and integrate them into local investment plans.
- **Ministry of Environment (MoE)** Provide technical guidance on infrastructure projects' sustainability criteria, climate resilience, and environmental compliance.
- Ministry of Economy and Finance (MEF) Facilitate access to green financing and incentives
 to attract investments in sustainable construction practices. The Credit Guarantee Corporation
 of Cambodia (CGCC) is also key for derisking private such investments in sustainable
 construction practices and energy efficiency, which would have an impact on the MSMEs
 ecosystem.
- **Ministry of Commerce (MoC)** Support MSMEs through awareness raising and capacity development on green trade standards, promotion of green certification schemes and fostering an enabling environment for green trade.
- Ministry of Industry, Science, Technology and Innovation (MISTI) Support MSMEs through formalization processes, and remote innovation and technical assistance for MSMEs for adopting low-carbon technologies.

SDG Acceleration: Promoting just energy transition, green innovation and nature-based solutions contributes to productive employment and income generation (SDG 8.5), especially for women and youth. These initiatives also help narrow regional disparities in energy access and economic opportunity.

Potential Trade-offs: The expansion of small-scale, off-grid, solar energy systems and the circular economy can shift pollution from one medium (e.g. air) to the other (e.g. soil and water) presenting challenges to SDG 8.4 if maintenance, waste collection, re-use and recycling are not carefully managed to avoid pressure on water, land, or existing agricultural systems. In terms of SDG 8.5, while just energy transition and circular economy can create jobs, maximizing their contribution to decent and inclusive employment will depend on ensuring adequate training, formalization, and support for broader participation, particularly among women, youth, and underrepresented groups.

- Ministry of Mines and Energy (MME) Accelerate the development of the regulatory framework
- to implement the solar rooftop⁷, and expand the deployment of off-grid renewable energy **technologies Ministry of Agriculture, Forestry and Fisheries (MAFF)** Support nature-based solutions that enhance sustainable rural livelihoods and environmental conservation.
- **Ministry of Women's Affairs (MoWA)** Ensure targeted programs empower women's participation and leadership in renewable energy and nature-based initiatives.
- **Ministry of Labor and Vocational Training (MLVT)** Facilitate skills development, vocational training, and green job creation for youth and rural communities.
- **Ministry of Rural Development (MRD)** Integrate these initiatives into rural development plans, promoting equitable access to energy and economic opportunities.
- **Ministry of Economy and Finance (MEF)** Catalyze private investment in holistic energy transition strategies and carbon mitigation by using innovative jurisdictional-scale carbon credits (ex. REDD+ at national or subnational level).

SDG Acceleration: To build a competitive, future-ready workforce, the government is also pursuing a revision of formal education curricula focused on STEM, clean energy, and climate-smart technologies. These efforts, alongside enhanced R&D in gender-responsive green technologies advance technological upgrading and support the emergence of an innovation-driven private sector (SDG 5, SDGs 8.2 and 8.3). Strengthening links between education, labor markets, and enterprise support services is essential to unlocking full and productive employment opportunities (SDG 8.5).

Potential Trade-offs: None identified.

National level operationalization:

- Ministry of Education, Youth and Sport (MoEYS) Lead the revision of formal education curricula to emphasize STEM, clean energy, and climate-smart technologies, ensuring gender-responsive content.
- **Ministry of Labor and Vocational Training (MLVT)** Strengthen vocational training and workforce development programs aligned with updated curricula and labor market needs.
- Ministry of Science, Technology and Innovation (MSTI) Promote research and development in gender-responsive green technologies and support innovation ecosystems. MISTI can also facilitate enterprise support services (in partnership with Khmer Enterprise) and foster linkages between the private sector and educational institutions.
- **Ministry of Commerce (MoC)** Support MSMEs through awareness raising and capacity development on green trade standards, green certification schemes, and green trade.
- **Ministry of Economy and Finance (MEF)** Allocate resources and incentives to support curriculum reform, R&D, and enterprise development initiatives.

SDG Acceleration: Establish public engagement initiatives, including awareness campaigns and technology demonstrations, to help equip MSMEs and private sector actors with the knowledge and tools needed to adopt low-carbon solutions across key sectors such as agriculture, tourism, and manufacturing. These activities will require upskilling the labor force, which is likely to create job opportunities for skilled workers, reduce informal labor, improve working conditions, and expand access to financial and technical support for enterprise development.

Potential Trade-offs: None identified.

Policy Implications and Recommendations for Action:

- Support economic diversification through targeted investment in green sectors and technology upgrading initiatives.
- Promote MSME inclusion in climate-resilient infrastructure and service delivery through procurement, technical assistance, and financing schemes.
- Align education and training systems with labor market needs in renewable energy and sustainable industry.
- Expand inclusive employment opportunities, particularly for women and youth, through rural RE access and enterprise development programs.
- Foster innovation ecosystems by linking research institutions, government, and private sector actors in green technology advancement.

3.2 Modernize Energy Grid



Cambodia's efforts to advance clean energy and modernize infrastructure closely align with the national objective of achieving inclusive and sustainable economic growth, in line with SDG Targets 8.1, 8.2, 8.3, 9.1, 9.4, and 10.2. These actions help reduce greenhouse gas (GHG) emissions and create pathways for technological innovation, enterprise development, and equitable service delivery, particularly in underserved regions.

SDG Acceleration: Deploying off-grid street lighting systems directly supports economic inclusion (SDG 10.2) by enhancing public safety, extending working hours, and improving the operating environment for local businesses and informal workers. These systems also reduce local energy costs and reliance on fossil fuels, contributing to environmental and economic gains in per capita growth (SDG 8.1).

Potential Trade-offs: None identified.

- Ministry of Public Works and Transport (MPWT) Lead the technical deployment and maintenance of off-grid street lighting systems in collaboration with municipalities and city administrations.
- –
- Ministry of Economy and Finance (MEF) Mobilize funding, subsidies, and financial incentives
 to support installation and scaling of solar street lighting.
- **Ministry of Rural Development (MRD)** Integrate off-grid lighting projects into rural development frameworks to maximize social and economic impact.
- **Ministry of Environment (MoE)** Integrate environmental concerns into energy policies, ensuring the sustainable use of natural resources, and advocating for a green and just energy transition.

SDG Acceleration: At the strategic level, the Long-Term Strategy for Carbon Neutrality serves as a guiding framework for cross-sectoral transformation. It supports SDGS **8.2 and 9.4** by promoting industrial decarbonization, technology transfer, and green investment.

Potential Trade-offs: None identified.

National level operationalization:

- **Ministry of Planning (MoP)** Lead the development and integration of the long-term lowemission strategy into national development plans and cross-sectoral policies.
- **Ministry of Mines and Energy (MME)** Drive the promotion of clean energy technologies and implement a national renewable energy certification system to support decarbonization efforts.
- Ministry of Industry, Science, Technology and Innovation (MISTI) Facilitate technology transfer, innovation, and adoption of green industrial practices to enhance productivity and competitiveness and support industrial decarbonization efforts.
- Ministry of Economy and Finance (MEF) Mobilize green investment through fiscal policies, incentives, and financing mechanisms aligned with the Long-Term Strategy for Carbon Neutrality.
- **Ministry of Environment (MoE)** Provide environmental oversight and ensure the strategy aligns with climate goals and sustainable development commitments.

SDG Acceleration: Investments in grid modernization, flexibility, and storage are essential to expanding renewable energy integration, improving electricity reliability, and enabling the shift to a smart, sustainable energy system (SDG 9.1). These improvements increase economic efficiency and productivity by reducing energy losses and ensuring consistent and affordable power supply to industries, MSMEs, and digital platforms (SDG 8.2).

Potential Trade-offs: None identified.

National level operationalization:

- **Ministry of Mines and Energy (MME)** Lead grid modernization efforts, implement flexible grid technologies, promote smart grid technologies, and oversee integration of energy storage solutions.
- **Ministry of Economy and Finance (MEF)** Mobilize financial resources and design incentives for infrastructure investments and private sector engagement.
- Ministry of Industry, Science, Technology and Innovation (MISTI) Promote innovation, and support associated industries and MSMEs' development.

- **Electricity Authority of Cambodia (EAC)** Regulate and facilitate grid improvements and renewable energy integration overall efficiency and reliability of the electricity grid.
- **Ministry of Commerce (MoC)** Raise awareness and support exporting MSMEs in meeting environmental and climate markets requirements and implement relevant green certification.

SDG Acceleration: Adopting energy efficiency measures in buildings and industry by applying modern technologies and performance standards and supporting retrofitting infrastructure to lower emissions (SDG 9.4) also creates business opportunities for energy service companies, green construction firms, and clean tech entrepreneurs (SDG 8.3). These measures also create demand for specialized skills, helping generate decent jobs and stimulate innovation.

Potential Trade-offs: None identified.

National level operationalization:

- **Ministry of Mines and Energy (MME)** Lead the development and enforcement of energy efficiency regulations and promote energy efficiency technologies in buildings and industry.
- Ministry of Industry, Science, Technology and Innovation (MISTI) Promote industrial innovation, support clean tech entrepreneurship, and develop national performance standards.
- Ministry of Land Management, Urban Planning and Construction (MLMUPC) Integrate energy efficiency requirements into building codes and oversee retrofitting initiatives.
- **Ministry of Labor and Vocational Training (MLVT)** Develop training programs for specialized skills needed in energy services and green construction.
- **Ministry of Economy and Finance (MEF)** Mobilize investment, offer fiscal incentives, and facilitate financing mechanisms for energy-efficient retrofits and clean tech businesses.

SDG Acceleration: In parallel, the climate-proofing of solar and hydropower infrastructure ensures that existing and future energy assets remain resilient to climate impacts. This directly enhances infrastructure sustainability and reliability (SDG 9.1), particularly in remote or climate-vulnerable areas, and protects the economic value of public and private sector energy investments. These actions also contribute to inclusive development by ensuring that all regions benefit from stable and clean energy services (SDG 10.2).

Potential Trade-offs: None identified.

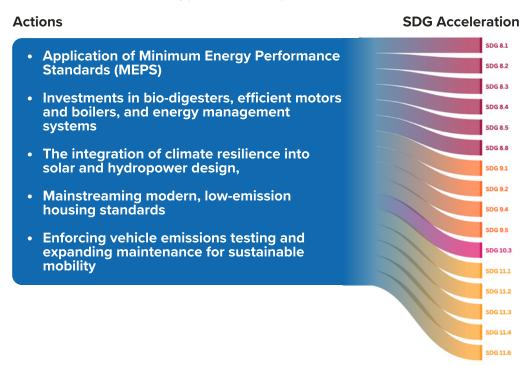
National level operationalization:

- **Ministry of Mines and Energy (MME)** Lead technical planning, regulation, and oversight of climate-resilient energy infrastructure projects.
- **Ministry of Environment (MoE)** Provide climate risk data, environmental assessments, and guidance on adaptation measures for infrastructure.
- **Ministry of Public Works and Transport (MPWT)** Ensure integration of resilient infrastructure design into broader national infrastructure development frameworks.
- **Ministry of Economy and Finance (MEF)** Allocate budgetary support and promote public-private partnerships for climate-resilient energy investments.
- **Ministry of Planning (MoP)** Ensure alignment with national development and climate adaptation strategies, particularly for remote and vulnerable regions.

Policy Implications and Recommendations for Action:

- Expand decentralized energy systems in rural areas to stimulate local enterprise, improve public services, and reduce inequality.
- Implement national and subnational low-emission strategies to guide coordinated investment and innovation in clean energy and sustainable industry.
- Accelerate grid upgrades and energy storage solutions to integrate renewables and boost reliability for MSMEs and industrial users.
- Promote public-private partnerships for energy efficiency in buildings and industrial sectors to drive productivity gains and formal employment.
- Integrate climate resilience standards in energy infrastructure planning to ensure long-term reliability and economic returns.

3.3 Enhance Energy Efficiency



SDG Acceleration: Applying Minimum Energy Performance Standards (MEPS) and energy labelling, especially for lighting, cooling, and appliances—along with the National Cooling Action Plan and transition to low-Global Warming Potential (GWP) refrigerants, drives technological upgrading and energy innovation (SDG 8.2). These measures create opportunities for small and medium enterprises (SMEs) in equipment servicing, manufacturing, and green product distribution (SDG 8.3), while reducing energy costs across households and businesses.

Potential Trade-offs: Implementing enhanced Minimum Energy Performance Standards (MEPS) and transitioning away from high-GWP Fluorinated-gases in cooling technologies supports climate goals but may raise upfront costs of air conditioners and refrigerators, potentially affecting affordability for low-income households. This could challenge SDG 10.4 by widening inequality if subsidies or financing mechanisms are not in place to ensure equitable access to efficient appliances. Similarly, SDG 11.1 may be affected if improved cooling standards are not integrated into affordable housing strategies, leading to a gap in thermal comfort and energy access for vulnerable urban populations.

- **Ministry of Mines and Energy (MME)** Lead implementation of MEPS, renewable energy certification and appliance labelling.
- **Ministry of Environment (MoE)** Ensure environmental standards for refrigerants and support climate mitigation goals, and the implementation of the National Cooling Action Plan.
- Ministry of Industry, Science, Technology and Innovation (MISTI) Support innovation and capacity building for SMEs in energy-efficient manufacturing and services.
- **Ministry of Commerce (MoC)** Regulate imports and sales of energy-efficient products and promote green product markets.
- **Ministry of Economy and Finance (MEF)** Provide fiscal incentives and financing mechanisms to support the adoption of energy-efficient technologies.

SDG Acceleration: The Building Energy Code, passive cooling systems, and mandatory standards for new construction and renovations promote the development of sustainable and climate-resilient infrastructure (SDG 9.1). This supports the retrofitting of buildings and industrial processes to meet energy and emissions targets (SDG 9.4), while also stimulating new employment and service delivery markets for energy audits, green construction, and certification services.

Potential Trade-offs: Integrating passive cooling performance and energy efficiency requirements into Cambodia's Building Energy Code can enhance sustainability and reduce long-term energy costs, but may increase construction costs in the short term, potentially affecting affordability. This can pose a challenge to SDG 10.4, as the added cost burden could disproportionately impact lower-income groups unless appropriate support mechanisms are provided. For SDG 11.1, ensuring that affordable housing initiatives align with the updated code is essential to avoid excluding vulnerable populations from accessing housing that meets new efficiency standards.

National level operationalization:

- Ministry of Land Management, Urban Planning and Construction (MLMUPC) Lead
 enforcement of building codes and construction standards and integrate energy-efficient
 design requirements.
- Ministry of Mines and Energy (MME) Develop technical standards and support energy efficiency programs, including retrofitting and energy audits.
- Ministry of Environment (MoE) Ensure climate resilience and emissions targets are met and
 oversee environmental compliance in infrastructure projects.
- Ministry of Industry, Science, Technology and Innovation (MISTI) Promote industrial retrofitting, support innovation in green technologies, and foster new service markets.
- Ministry of Economy and Finance (MEF) Design and manage financial incentives for retrofitting, green certification, and sustainable construction practices.

SDG Acceleration: Investments in bio-digesters, efficient motors and boilers, and energy management systems in SMEs and industries advance productivity gains (SDG 8.2) and a transition toward sustainable, low-carbon business models (SDG 9.4). Voluntary efficiency programs further help MSMEs formalize operations and access new markets (SDG 8.3), while reducing inequalities in access to modern technologies (SDG 10.3).

Potential Trade-offs: If energy management standards are indirectly passed on through higher operating or construction costs, this may affect the affordability of services and housing, especially in lower-income urban areas (SDG 11.1).

National level operationalization:

- Ministry of Industry, Science, Technology and Innovation (MISTI) Lead technology adoption, energy efficiency standards, and industrial innovation strategies.
- **Ministry of Mines and Energy (MME)** Support implementation of energy-efficient systems and energy management frameworks in construction, touristic and industrial sectors.
- Ministry of Economy and Finance (MEF) Provide fiscal incentives, subsidies, and financing mechanisms for investments in green technologies.
- **Ministry of Commerce (MoC)** Promote market access for formalized MSMEs and support certification and export readiness programs.
- **Ministry of Labor and Vocational Training (MLVT)** Offer training programs to upskill workers in energy-efficient and low-carbon technologies.
- **Ministry of Environment (MoE)** Ensure environmental compliance and link energy efficiency programs to national climate goals.

SDG Acceleration: The integration of climate resilience into solar and hydropower design and the mainstreaming of modern, low-emission standards into the construction sector, promote equal access to energy-efficient infrastructure, including for vulnerable populations (SDG 10.3). This supports both inclusive urban development and resilience in climate-affected regions. **Potential Trade-offs:** None identified.

National level operationalization:

- Ministry of Land Management, Urban Planning and Construction (MLMUPC) Integrate lowemission and resilient housing standards into rural and urban construction practices.
- **Ministry of Mines and Energy (MME)** Ensure climate-resilient design in solar and hydropower infrastructure planning and implementation.
- **Ministry of Rural Development (MRD)** Implement energy-efficient housing and infrastructure projects in rural and climate-vulnerable areas.
- **Ministry of Environment (MoE)** Provide climate risk data and guidance to ensure resilience is embedded in project design and implementation.
- Ministry of Social Affairs, Veterans and Youth Rehabilitation (MoSVY) Identify and support vulnerable populations to ensure equitable access to resilient infrastructure.
- **Ministry of Economy and Finance (MEF)** Mobilize resources and develop financing schemes to support low-income households in adopting energy-efficient housing.

SDG Acceleration: In the transport sector, measures to improve fuel efficiency and electrical mobility, enforce vehicle inspection and emissions testing, and expand maintenance centres contribute to safer, more sustainable mobility systems (SDG 11.2). These reforms reduce urban air pollution and transport costs while generating jobs in inspection, repair, and compliance services. **Potential Trade-offs:** None identified.

- Ministry of Public Works and Transport (MPWT) Lead upgrade and compliance of vehicle inspection systems, emissions testing standards, and licensing of maintenance centres.
- **Ministry of Environment (MoE)** Develop emissions standards, monitor air quality, and assess environmental impacts of transport-related pollution.
- **Ministry of Labor and Vocational Training (MLVT)** Provide skills training and certification for workers in vehicle maintenance, inspection, and compliance services.
- **Ministry of Economy and Finance (MEF)** Allocate funding, create incentives for clean vehicle technologies, and support private sector participation in sustainable mass transport services.
- Ministry of Interior (Mol) Support enforcement through the traffic police and ensure coordination at the subnational level.

Complementing these efforts, initiatives to promote composting, recycling, and circular economy principles reduce waste and generate opportunities for local innovation, entrepreneurship, and informal sector inclusion (SDG 8.3, SDG 10.3), especially in rapidly urbanizing areas. By implementing these cross-sectoral reforms, Cambodia will foster an enabling environment for innovation-driven growth, resilient infrastructure, and inclusive service access, contributing meaningfully to SDG Targets 8.2, 8.3, 9.1, 9.4, 10.3 and 11.2.

3.4 Foster Sustainable Urban Development



SDG Acceleration: The implementation of green and resilient building codes, energy-efficient construction standards, and Gender Equality, Disability, and Social Inclusion (GEDSI)-responsive affordable housing policies contributes to both economic diversification and enterprise development (SDG 8.2 and 8.3). These reforms foster innovation in green construction, create demand for skilled labor, and open new markets for local enterprises offering climate-smart solutions.

Potential Trade-offs: None identified.

- Ministry of Land Management, Urban Planning and Construction (MLMUPC) Lead development, regulation, and enforcement of green building codes and housing standards.
- **Ministry of Environment (MoE)** Ensure alignment with climate resilience goals and provide guidance on environmental sustainability.
- **Ministry of Women's Affairs (MoWA)** Integrate GEDSI considerations into housing and construction policies.
- **Ministry of Labor and Vocational Training (MLVT)** Develop training programs to build a skilled green construction workforce.
- **Ministry of Commerce (MoC)** Support market access and enterprise growth for local climatesmart businesses.
- **Ministry of Economy and Finance (MEF)** Mobilize funding, provide incentives, and align budgeting with green construction priorities.

SDG Acceleration: Investments in climate resilient infrastructure, including school facilities, public health buildings, and solid and liquid waste management systems, directly support the development of sustainable, inclusive infrastructure (SDG 9.1) while upgrading the efficiency and climate compatibility of existing systems (SDG 9.4). These efforts reduce operational risks on the medium-to-long term, improve service continuity, and enhance productivity in key sectors such as education, health, and urban development.

Potential Trade-offs: None identified.

National level operationalization:

- Ministry of Public Works and Transport (MPWT) Lead infrastructure planning and implementation, including waste management systems.
- Ministry of Education, Youth and Sport (MoEYS) Oversee the upgrade and climate-proofing of school facilities.
- **Ministry of Health (MoH)** Ensure resilient infrastructure for health centers and hospitals, with emphasis on service continuity and climate risk mitigation.
- **Ministry of Environment (MoE)** Set environmental and climate resilience standards and monitor compliance in infrastructure projects.
- **Ministry of Economy and Finance (MEF)** Allocate funding and promote financing mechanisms for resilient infrastructure investments.
- Ministry of Land Management, Urban Planning and Construction (MLMUPC) Ensure alignment with urban development plans and enforce building codes and zoning regulations.

SDG Acceleration: Urban policies that promote mixed-use land approaches, standardized green spaces, and climate-resilient public spaces strengthen urban planning systems and support inclusive urban growth (SDG 11.3). Simultaneously, initiatives such as promoting electric vehicles, integrated public transport systems, and modal shift to public transit aim to reduce congestion, enhance urban mobility, and increase access to safe, affordable and sustainable transport (SDG 11.2), particularly for low-income and vulnerable populations.

Potential Trade-offs: None identified.

- Ministry of Land Management, Urban Planning and Construction (MLMUPC) Lead on urban planning reforms, enforce mixed-use zoning, and oversee the development of green and climate-resilient urban infrastructure.
- Ministry of Public Works and Transport (MPWT) Develop and implement integrated public transport systems, promote modal shift, and support the transition to electric mobility.
- **Ministry of Environment (MoE)** Provide guidance on climate resilience, green infrastructure, and environmental impact assessments for projects.
- **Ministry of Economy and Finance (MEF)** Allocate funding for urban infrastructure projects and provide incentives for low-carbon transportation.
- Municipal and Provincial Authorities (e.g., Phnom Penh Capital Administration) Implement urban policies at the local level, ensuring alignment with national strategies and addressing community-specific mobility and planning needs.

SDG Acceleration: Policies promoting adaptive social protection systems, low-cost shelters, and land-use planning for vulnerable communities contribute to the formalization of informal settlements and the inclusion of marginalized groups in urban development processes (SDG 8.3 and 11.3). These efforts also ensure that climate-resilient infrastructure serves the needs of all citizens, fostering social equity and sustainable livelihoods.

Potential Trade-offs: None identified.

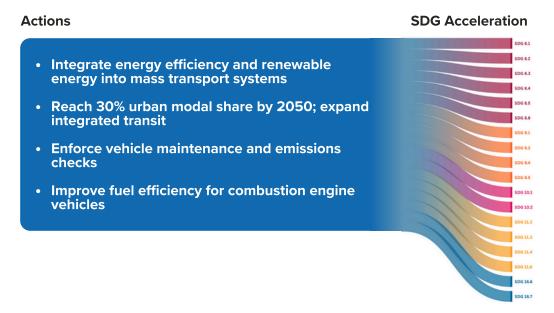
National level operationalization:

- Ministry of Land Management, Urban Planning and Construction (MLMUPC) Lead land-use
 planning and formalization of informal settlements. Develop and enforce building codes for lowcost, climate-resilient shelters.
- Ministry of Social Affairs, Veterans and Youth Rehabilitation (MoSVY) Design and implement adaptive social protection programs targeting vulnerable and marginalized communities. Facilitate social inclusion and support services for informal settlers.
- **Ministry of Environment (MoE)** Provide guidelines and oversight on climate resilience and environmental sustainability in infrastructure development.
- Ministry of Economy and Finance (MEF) Mobilize financial resources and subsidies to support low-cost housing projects and social protection schemes.
- **Ministry of Planning (MoP)** Integrate these efforts into national urban development strategies and monitor progress toward SDGs.

Together, these cross-cutting investments and reforms will serve as a foundation for Cambodia's inclusive green transition, boosting productivity, expanding enterprise opportunities, and building climate-resilient urban systems in line with SDG targets 8.2, 8.3, 9.1, 9.4, 11.2, and 11.3.



3.5 Promote Sustainable Urban Mobility



SDG Acceleration: The integration of energy efficiency (EE) and renewable energy (RE) into mass transport and the national logistics master plan supports technological upgrading and diversification of the transport sector (SDG 8.2). The targeted transition to electric vehicles (EVs)—including a 70% shift for motorcycles and 40% for cars and buses by 2050—fosters green innovation, enhances energy independence, and reduces emissions from urban mobility systems (SDG 9.4).

Potential Trade-offs: None identified.

National level operationalization:

- Ministry of Public Works and Transport (MPWT) Lead the integration of energy efficiency and renewable energy into mass transport systems. Develop and implement the national logistics master plan focusing on green technology and EV adoption targets.
- Ministry of Mines and Energy (MME) Support the transition to renewable energy sources for transport and facilitate the development of EV charging infrastructure. Promote policies and incentives for renewable energy integration and energy efficiency in transport.
- **Ministry of Environment (MoE)** Provide environmental standards and ensure emissions reduction targets are met through sustainable transport policies. Monitor environmental impacts and support green innovation initiatives.
- Ministry of Industry, Science, Technology and Innovation (MISTI) Drive technological
 upgrading and innovation in the transport sector, including research and development of EV
 technologies and related industries. Support market development for EV-related businesses
 and green technology industries.
- Ministry of Economy and Finance (MEF) Facilitate financing mechanisms, subsidies, and incentives to accelerate the adoption of electric vehicles and energy-efficient transport solutions.



SDG Acceleration: Public transport goals, such as achieving a 30% modal share in urban areas by 2050, and expanding integrated systems in major cities, will create more accessible, affordable, and sustainable urban mobility solutions (SDG 11.2). These initiatives not only reduce congestion and pollution but also support inclusive urban planning (SDG 11.3) and regional coordination (SDG 11.a), especially in fast-growing secondary cities like Battambang, which is on track for green city integration by 2025.

Potential Trade-offs: Expanding public transportation in Cambodia to reach a 30% modal share by 2050 can reduce emissions and improve mobility, but it may also lead to shifts in employment patterns, particularly in the informal transport sector (e.g., moto-taxi and tuk-tuk drivers). Without inclusive transition planning, workers in these roles may face job displacement or income loss, challenging progress toward full and productive employment and decent work for all (SDG 8.5). Ensuring reskilling, job integration, and protections for affected groups will be critical to avoid deepening employment vulnerability.

National level operationalization:

- Ministry of Public Works and Transport (MPWT) Lead the planning, development, and
 expansion of integrated public transport systems across urban areas, including secondary
 cities. Set and monitor targets for modal share and accessibility.
- Ministry of Land Management, Urban Planning and Construction (MLMUPC) Integrate
 public transport planning within urban development frameworks to ensure inclusive and
 sustainable urban mobility. Coordinate land-use planning that supports transit-oriented
 development.
- **Ministry of Environment (MoE)** Oversee environmental standards to ensure transport expansion contributes to pollution reduction and sustainability.
- **Ministry of Economy and Finance (MEF)** Allocate funding and provide financial incentives for infrastructure investments and sustainable transport initiatives.
- Ministry of Tourism (MoT) Support the development of transport solutions that improve connectivity for tourists, complementing green city initiatives.

SDG Acceleration: The emphasis on vehicle maintenance and emissions inspection, with 30 inspection centers planned by 2030, reinforces infrastructure safety and operational efficiency (SDG 9.a), while creating new technical and service sector jobs that support decent employment and skills development (SDG 8.5). Similarly, fuel efficiency improvements for internal combustion engine vehicles will reduce operational costs for households and businesses, making transport more inclusive (SDG 10.2).

Potential Trade-offs: Establishing 30 vehicle inspection centres by 2030 in Cambodia supports improved air quality (SDG 11.6) and aligns with cleaner transport goals, but may create trade-offs with other targets. Compliance costs could reduce transport affordability for low-income users (SDG 11.2) and pressure informal drivers. Resource use may rise due to increased imports and premature scrapping of older vehicles (SDG 8.4), and care will be needed to avoid negative impacts on cultural areas (SDG 11.4) and to manage inspection-related waste sustainably.

- Ministry of Public Works and Transport (MPWT) Lead the establishment and regulation of vehicle maintenance and emissions inspection centers. Develop standards and policies for fuel efficiency improvements and transport safety.
- **Ministry of Environment (MoE)** Set and enforce emissions standards and environmental regulations related to vehicle pollution. Monitor environmental impacts of transport and promote cleaner technologies.
- **Ministry of Labor and Vocational Training (MLVT)** Design and implement skills development and training programs for technical jobs in vehicle maintenance and inspection sectors.
- **Ministry of Economy and Finance (MEF)** Provide financial incentives or subsidies for fuelefficient vehicle technologies and support investments in inspection infrastructure.
- Ministry of Industry, Science, Technology and Innovation (MISTI) Promote innovation in fuel
 efficiency technologies and support research and development for sustainable transport
 solutions. Support the growth and formalization of service providers in the transport
 maintenance sector, promoting decent employment.

Complementary actions such as awareness campaigns and demonstrations of low-carbon technologies targeted at MSMEs and the private sector will support entrepreneurship and the formalization of green transport services (SDG 8.3). These programs also promote broader public understanding of sustainable technologies, creating demand for innovative products and services. Most importantly, these efforts should be rooted in transparent, participatory planning processes involving local governments and stakeholders. This approach reinforces responsive, accountable institutions (SDG 16.6) and inclusive decision-making (SDG 16.7), ensuring that urban mobility solutions reflect the needs of all population groups. Together, these transport and urban development initiatives present a transformative opportunity to build a connected, productive, and equitable Cambodia that is aligned with national strategies and the broader 2030 Sustainable Development Agenda.

3.6 Improve Waste Management for Sustainable Cities



Cambodia's strategic push to improve waste management, reduce emissions, and promote circular economy models presents a significant opportunity to align environmental sustainability with inclusive economic development. The broad set of activities—from scaling up composting, recycling, and wastewater treatment to fostering green innovation and infrastructure—supports key Sustainable Development Goals (SDGS), notably 8.2, 8.3, 8.5, 9.1, 9.4, 11.2, and 11.3.

SDG Acceleration: Modernizing solid and liquid waste treatment infrastructure, including sanitary landfills, decentralized wastewater systems, and Refuse-Derived Fuel (RDF) facilities, contributes directly to developing reliable and resilient infrastructure (SDG 9.1). These investments improve urban health outcomes, reduce environmental degradation, and enable sustainable industrial expansion, particularly in high-emission sectors such as garments, food processing, and textiles. **Potential Trade-offs:** The construction of sanitary landfills and Refuse-Derived Fuel/Waste-to-Energy facilities in Cambodia can improve waste management and reduce emissions but may pose trade-offs with SDG 10.1 if such infrastructure is primarily developed in urban or economically advantaged regions. This could exacerbate regional disparities in access to clean and safe waste disposal services, leaving poorer or rural communities behind unless equitable geographic planning and inclusive financing are ensured.

National level operationalization:

- Ministry of Environment (MoE) Plan and supervise the design and construction of waste treatment infrastructure, including sanitary landfills. Lead the development and enforcement of environmental standards and regulations for solid and liquid waste management. Oversee the implementation of sustainable practices in waste treatment to reduce pollution and protect public health.
- Ministry of Ministry of Public Works and Transport (MPWT) and the Ministry of Rural
 Development (MRD) The MPWT focuses on urban wastewater management, while the MRD oversees rural sanitation.
- Ministry of Land Management, Urban Planning and Construction (MLMUPC) Integrate waste management facilities into urban development and land use plans.
- Ministry of Industry, Science, Technology and Innovation (MISTI) Support the adoption of advanced technologies such as Refuse-Derived Fuel (RDF) production in relevant industrial sectors. Promote innovation for sustainable industrial processes and cleaner production.
 Promote innovation for decentralized wastewater systems
- **Ministry of Health (MoH)** Monitor public health impacts related to waste management practices and advocate for improvements in sanitation and hygiene. Enforce safe management of healthcare waste. Collaborate on community awareness and health education campaigns.
- Ministry of Economy and Finance (MEF) Allocate budget and mobilize funding for infrastructure investments in waste treatment. Facilitate financial incentives or public-private partnerships to support modernization efforts.

Ministry of Planning (MoP) — Integrate waste management infrastructure projects into national development strategies and coordinate multi-sectoral planning.

SDG Acceleration: In parallel, technological upgrades in waste and wastewater management— such as methane recovery, composting, landfill gas extraction, and separation-at-source systems— support cleaner, more sustainable industrial operations (SDG 9.4), while fostering productivity gains and cost savings across production chains (SDG 8.2). These efforts enhance competitiveness and reduce environmental risks for Cambodian exporters and domestic firms.

Potential Trade-offs: None identified.

National level operationalization:

- **Ministry of Environment (MoE)** Lead the development and enforcement of environmental regulations and standards for waste and wastewater management. Promote adoption of technologies like methane recovery, landfill gas extraction, materials recovery facilities for recycling, and composting to reduce environmental risks.
- Ministry of Industry, Science, Technology and Innovation (MISTI) Facilitate technological
 upgrades and innovation in industrial processes to improve waste management and
 productivity. Support capacity building and technology transfer to firms for cleaner production.
 Accelerate the formalization of MSMEs.
- **Ministry of Commerce (MoC)** Assist domestic firms and exporters in meeting international environmental standards, enhancing competitiveness. Promote green certifications and market access for sustainable products.
- **Ministry of Economy and Finance (MEF)** Provide financial incentives, subsidies, or tax breaks to industries investing in sustainable waste management technologies.
- **Ministry of Public Works and Transport (MPWT)** Oversee infrastructure development for waste collection, treatment, and separation-at-source systems, and wastewater systems.
- Ministry of Agriculture, Forestry and Fisheries (MAFF) Promote composting and organic
 waste recycling, linking agricultural sectors with industrial waste reuse initiatives. Reduce the
 use of agricultural plastic and corresponding waste generation and promote reuse and
 recycling.

SDG Acceleration: Promoting waste valorisation, recycling, composting, and production of plastic alternatives—alongside formalising informal waste collectors would reduce poverty (SDG 1) and strengthen the ecosystem for MSME growth and green enterprise development (SDG 8.3). These measures also create decent, inclusive employment opportunities (SDG 8.5), especially for women, youth, and low-income communities, in sectors often overlooked in traditional economic planning. **Potential Trade-offs:** None identified.

- Ministry of Environment (MoE) Lead policy formulation on waste management, recycling standards, and environmental regulations. Provide technical guidance and promote sustainable waste valorization practices. Implement an Extended Producer Responsibility system for batteries, electrical waste and plastic.
- Ministry of Industry, Science, Technology and Innovation (MISTI) Support innovation and technology adoption among MSMEs in green enterprise development. Facilitate capacity building and technical assistance for waste recycling, composting and plastic alternatives production, and formalization of relevant businesses. Encourage green entrepreneurship through incentives and certification schemes.
- Ministry of Labor and Vocational Training (MLVT) Develop training programs to formalize and upskill informal workers, including waste collectors. Promote decent work conditions and inclusive employment in the waste management sector.
- **Ministry of Women's Affairs (MoWA)** Ensure targeted support to women entrepreneurs and workers in waste-related sectors. Promote relevant gender-inclusive policies and programs.
- **Ministry of Economy and Finance (MEF)** Mobilize financial resources, subsidies, and access to credit for green MSMEs and formalization initiatives.

SDG Acceleration: Urban-focused actions such as expanding waste collection services, integrating flood-resilient infrastructure, and planning waste logistics systems that align to the three Rs (Reduce, Reuse, Recycle) to enhance Cambodia's capacity for integrated and sustainable urban development (SDG 11.3). This directly complements efforts to ensure equitable access to public sanitation and waste services across urban and peri-urban areas (SDG 11.2).

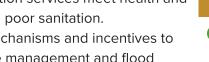
Potential Trade-offs: Without targeted efforts to include low-income and remote communities, the expansion of waste collection services could widen inequality in access to basic waste services, reinforcing existing geographic and socioeconomic disparities. Moreover, unorganised recycling and waste treatment facilities can increase in poorer areas causing pollution of water, air, soil, and other natural resources.

National level operationalization:

- Ministry of Environment (MoE) Lead the design and enforcement of waste management policies, including waste collection, recycling, and environmentally sound disposal practices.

 Oversee environmental standards for flood-resilient infrastructure to reduce urban vulnerability.
- Ministry of Land Management, Urban Planning and Construction (MLMUPC) Integrate
 flood-resilient infrastructure and waste logistics systems into urban and peri-urban planning
 frameworks.
- Ministry of Public Works and Transport (MPWT) Coordinate infrastructure development to support sustainable urban growth. Support the development and maintenance of urban infrastructure related to waste logistics, transport routes, and drainage systems to mitigate flooding.
- **Ministry of Interior (Mol)** Work with municipal and local authorities to expand and manage waste collection services, ensuring equitable coverage across urban and peri-urban areas.

- **Ministry of Health (MoH)** Collaborate to ensure public sanitation services meet health and hygiene standards, reducing disease risks related to waste and poor sanitation.
- Ministry of Economy and Finance (MEF) Provide funding mechanisms and incentives to support infrastructure projects and service expansions in waste management and flood resilience.



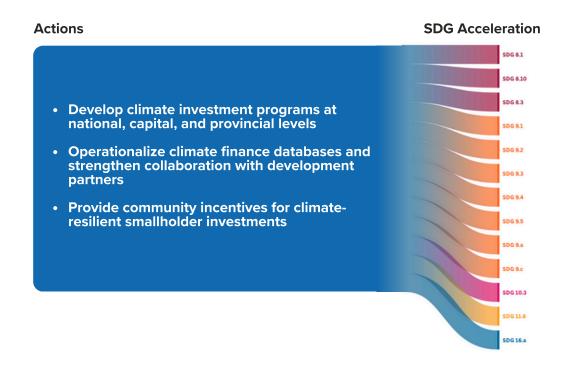
SDG Acceleration: Moreover, implementing the national solid waste strategy⁸, strengthening legal instruments, and training subnational officials ensure that waste management is institutionalized, well-coordinated, and aligned with broader goals of environmental governance and green innovation.

Potential Trade-offs: None identified

Policy Implications and Recommendations:

- Scale investments in circular economy infrastructure that align waste treatment, energy recovery, alternatives development and industrial modernization.
- Promote local entrepreneurship and job creation in waste collection, sorting, recycling, and composting, with attention to the needs of informal workers.
- Incorporate climate-resilient waste systems into urban planning and municipal development strategies to reduce vulnerability and improve wellbeing.
- Strengthen capacity building, legal enforcement, and public-private coordination to foster innovation and sustainability in waste-intensive sectors.

3.7 Increase Private-sector Financing for Urban Climate Projects



SDG Acceleration: Developing a climate change public investment program across national, capital, and provincial levels promotes coordinated, multi-tiered infrastructure planning and helps ensure that public funds are directed toward resilient, low-carbon projects (SDG 9.1, 9.4). By prioritizing inclusive and locally relevant investments, the program also enhances the economic participation of micro-, small- and medium-sized enterprises (MSMEs) and supports decent job creation (SDG 8.3).

Potential Trade-offs: Unequal participation in planning or disparities in fund distribution could undermine perceptions of fairness and reinforce existing social or geographic inequalities in access to climate-related benefits in relation to SDG 10.3. Ensuring equity and representation in investment decisions is essential to avoid exacerbating discrimination or marginalization.

National level operationalization:

- Ministry of Economy and Finance (MEF) Lead the design and management of the public investment program's financing framework, and publish regularly the Cambodia Climate Public Expenditure Review piloted with MOE within the framework of the Cambodia Climate Change Alliance. Allocate and oversee public funds for climate-resilient, low-carbon infrastructure projects, and expand the application of SDG13 budget tagging. Ensure budget alignment with national priorities and SDGs. Promote climate and green finance, and related PPPs.
- Ministry of Planning (MoP) Coordinate multi-tiered planning across national, capital, and provincial levels. Integrate climate change considerations into development plans and investment strategies. Monitor and evaluate program impacts.
- **Ministry of Environment (MoE)** Provide technical guidance on climate resilience and low-carbon standards for infrastructure projects. Ensure environmental safeguards and sustainability criteria are met. Accelerate preparedness for compliance carbon markets.
- Ministry of Land Management, Urban Planning and Construction (MLMUPC) Facilitate infrastructure planning that aligns with climate adaptation and mitigation goals. Support integration of climate investments into urban and regional development frameworks.
- Ministry of Industry, Science, Technology and Innovation (MISTI) Promote MSME engagement in climate-resilient infrastructure projects through capacity building, innovation support, and business formalization. Foster decent job creation within green sectors.
- **Ministry of Commerce (MoC)** Raise awareness on green trade standards. Facilitate ecommerce and access to socially responsible markets.

SDG Acceleration: Efforts to operationalize climate finance databases and enhance cooperation with development partners and NGOs contributing to SDG 9.a for strengthening access to financial and technical resources. This creates an enabling environment for innovation and sustainability across sectors and improves information accessibility and coordination, accelerating digital transformation (SDG 9.c).

Potential Trade-offs: None identified.

- Ministry of Economy and Finance (MEF) Coordinate with MOE the management of climate finance databases. Coordinate financial resource mobilization and reporting, ensuring transparency and accountability.
- Ministry of Environment (MoE) Provide technical expertise on climate-related projects and align finance tracking with environmental priorities. Facilitate collaboration with international climate finance mechanisms. Develop the needed data and digital infrastructure for transparency and accountability on the use of funds for mitigation or adaptation.
- Ministry of Posts and Telecommunications (MPTC) Support the development and maintenance of digital platforms and ICT infrastructure needed for accessible and integrated finance databases.
- **Ministry of Planning (MoP)** Integrate climate finance data into national development planning and monitoring systems. Coordinate with development partners and NGOs for data sharing and capacity building.
- Ministry of Industry, Science, Technology and Innovation (MISTI) Promote innovation through improved access to climate finance and foster technology transfer.

SDG Acceleration: Community-level incentives for climate-resilient investments, such as storage, solar power, rainwater harvesting, and WASH infrastructure, that are critical for improving rural livelihoods and addressing structural inequalities (SDG 10.3). These investments expand market access, local productivity, and participation in resilient food systems, particularly for women and vulnerable groups.

Potential Trade-offs: None identified

National level operationalization:

- Ministry of Agriculture, Forestry and Fisheries (MAFF) Lead the design and promotion of climate-resilient agricultural technologies and practices, including storage, rainwater harvesting, and solar power adoption. Provide technical support and extension services to smallholder farmers, focusing on vulnerable groups.
- **Ministry of Rural Development (MRD)** Facilitate community-level infrastructure development for WASH (Water, Sanitation, and Hygiene) and support rural livelihoods. Mobilize local authorities to implement incentive programs and ensure equitable access.
- **Ministry of Environment (MoE)** Ensure environmental sustainability and climate resilience in agricultural and rural development projects. Provide guidelines on sustainable water and energy use.
- **Ministry of Women's Affairs (MoWA)** Promote women's participation and leadership in climate-resilient investments and decision-making processes at the community level.
- **Ministry of Economy and Finance (MEF)** Provide financial incentives, subsidies, and access to credit tailored for adopting climate-resilient infrastructure and developing relevant value chains.
- **Ministry of Commerce (MoC)** Support market access initiatives that enable smallholders to participate in resilient food systems and expand economic opportunities.

Urban sustainability is also advanced through the promotion of low-carbon policies and guidelines. When integrated into subnational planning, these frameworks foster participatory urban development and align with SDG 11.3 by enhancing institutional capacity and accountability in infrastructure planning. Additionally, expanding access to climate-resilient services (e.g., solar-powered transport, inclusive infrastructure, or decentralized WASH systems) supports affordable and sustainable mobility and service delivery (SDG 11.2).

Together, these actions reflect a shift toward a climate-informed economy that prioritizes productivity, inclusivity, and resilience, and enables Cambodia to unlock external support and foster long-term sustainability at both national and local levels.





4. Finance and Stimulus

4.1 Public Finance

In 2025, Cambodia's gross government debt is projected to amount to 29.1% of GDP (world Bank and IMF), a significantly lower figure compared to the average of 59.1% observed among low-income developing countries (LIDC). The nation is expected to generate revenue equivalent to 14.7% of GDP, approximately one-third below the LIDC average of 21.8%.

Public external debt servicing for the year is anticipated to reach 11.0% of revenue, representing a reduction of nearly one-fifth compared to the LIDC average of 15.3%. The latest Debt Sustainability Analysis (DSA), conducted by the World Bank and the International Monetary Fund (IMF) in December 2023, assesses Cambodia as being at a "low risk of debt distress".

Cambodia's financial stability is reinforced by its prudent fiscal policies. The Kingdom maintains a disciplined approach to borrowing, limiting it to productive investments in infrastructure, while actively implementing the Revenue Mobilization Strategy 2019–2023 to strengthen public finances and enhance expenditure sustainability.

Cambodia has made progress in climate-related Sustainable Development Goals (CSDGs), particularly in the areas of green infrastructure, water accessibility, sanitation, and renewable energy. However, persistent challenges remain in rural infrastructure, financing mechanisms, urbanization, and waste management (VNR 2023)⁹.

The International Monetary Fund estimated in 2019 that additional spending of about 7.5 percent of Cambodia's 2030 GDP is needed to help fund priority SDGs¹⁰. The COVID pandemic has affected negatively the growth rate and led to the loss of some development gains that would further increase the costs, and the timeframe needed for achieving the SDGs.

On climate, the Nationally Determined Contributions (NDC 2.0), currently being revised, estimated the total financial requirement by 2030 at USD 7.7 billion. Of this amount, USD 5.7 billion is allocated for mitigation efforts, while USD 2 billion is designated for adaptation actions. This includes the costs associated with implementing the 41.7% emissions reduction target by 2030, with a focus on forestry, land use, and other sectors like energy, agriculture, industry, and waste. The NDC also encompasses adaptation measures in infrastructure, water management, and agriculture. Development partners currently provide 86.8% of climate financing, whereas private sector contributions remain minimal at 0.2%, highlighting significant untapped investment opportunities.¹⁰

To date, the country secured over USD 245 million from GCF, USD 18 million from GEF and USD 20 million from Adaptation fund. Cambodia has also actively participated in the voluntary carbon market, generating revenue USD \$11.6 million from selling carbon credits from REDD+ projects, particularly in areas like Keo Seima Wildlife Sanctuary and the Southern Cardamom National Park. The Japan bilateral Joint Crediting Mechanism is another opportunity to mobilize climate finance, where Japan supports Cambodia's efforts to reduce greenhouse gas emissions through the introduction of low-carbon technologies. This would help both countries achieve their respective Nationally Determined Contributions (NDCs). The Royal Government is exploring other government-to-government mechanisms. A disadvantage that the Cambodian Government faces is a lack of reliable and comprehensive data on private climate-related investments, which hinders the ability to monitor, influence, and improve them¹¹.

In addition, it has developed several financing frameworks and initiatives to support its transition toward a more sustainable and climate-resilient economy:

- Cambodia Climate Change Financing Framework (CCFF)¹²: The CCFF serves as a strategic guide for mobilizing climate finance from domestic and international sources. It is intended to inform the implementation of the Cambodia Climate Change Strategic Plan (CCCSP) and helps estimate the costs of climate change response and potential impacts. It assesses existing climate expenditures, identifies funding gaps, and outlines potential financing mechanisms to support Cambodia's climate goals. The framework also emphasizes the importance of private sector participation and public investment in climate-smart projects.
- Scaling Up Locally Led Climate Action: The aim is to scale-up locally led climate initiatives, focusing on community-driven resilience projects. The government has integrated climate finance mechanisms into local development planning, ensuring that subnational administrations can effectively address climate vulnerabilities. This approach aims to strengthen climate adaptation efforts at the grassroots level.¹³

Cambodia is actively developing its green and sustainable bond market. In 2019, the Association of Banks in Cambodia signed a memorandum of understanding with the United States Agency for International Development's Green Invest Asia to establish national risk management and sustainable finance principles. This could open the door to set up institutional structures for green finance. Several financial policy reforms were also introduced to leverage finance. The Policy Framework on the Development of Government Securities 2023–2028 was endorsed by the Cambodian Government in November 2023 to facilitate the establishment of a well-functioning government securities market. The framework was introduced to establish a structured and efficient government securities market, which is essential for enhancing fiscal policy implementation, managing public debt, and deepening the financial sector. By developing a robust securities market, Cambodia aims to improve liquidity management, create investment opportunities, and strengthen macroeconomic stability.

A well-functioning securities market can enable the issuance of green and sustainability-linked bonds, which are increasingly recognized as effective instruments for financing Cambodia's Nationally Determined Contributions (NDCs). By strengthening the domestic debt market infrastructure, the framework lays the groundwork for leveraging public and private capital to meet climate and sustainable development financing needs. The issuance of government bonds signals the deepening of the domestic capital market and establishment of a risk-free benchmark for pricing locally issued corporate bonds.

Although the issuance of sovereign thematic bonds is not expected in the near term, Cambodia has been laying the groundwork for future developments. Development partners, including UN Agencies and international financial institutions, are playing a crucial role in supporting this initiative through technical assistance, capacity-building programs, digital transformation, and feasibility studies. These efforts are building Cambodia's institutional expertise, establish regulatory frameworks, and assess market readiness for government securities.

Corporate Social Responsibility (CSR) can also bring meaningful investments. This has been demonstrated in the mine action sector. CSR should move beyond conventional notions to integrate social and environmental values in business strategies. Transforming CSR into an obligation is one option for new financing. For Cambodia to adopt a law requiring companies to spend a percent of their net profit on addressing social and environmental challenges, the Government would need to clearly indicate the firms subject to it, areas and activities to be supported, conditions for spending and enforcement mechanisms.

4.2 Private Finance

Cambodia has introduced several blended finance initiatives to enhance sustainability across key sectors:

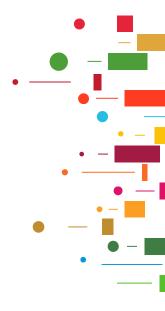
- The GCCC Investment Support Facility for Post-Harvest Fisheries: It employs blended financing approaches to increase fisheries productivity, enhance processing efficiency, and improve market access.¹⁴
- The WASH sector: this sector focuses on water access, sanitation, and hygiene and is exploring
 opportunities to integrate private sector investment alongside public funding, aiming to
 enhance infrastructure and service delivery in underserved communities.¹⁵
- The Sustainable Green Financing Facility (SGFF): ¹⁶ It is a blended financing model which enables development partners (including donors, IFIs and MDBs) and participating financial institutions to finance and derisk green private investments to accelerate the SDG.
- This Cambodia Climate Finance Facility (CCFF): ¹⁷ This facility provides long-term, concessional loans to businesses and local financial institutions to support green projects and de-risk climate-related investments. It offers two channels: direct loans to businesses and wholesale funding to LFIs to expand green lending.
- The Clean Energy Revolving Fund provides targeted financial support to farmers, enabling the adoption of clean energy solutions that improve agricultural efficiency and environmental sustainability.¹⁸

Despite these advancements, key challenges remain for the long-term success of blended finance mechanisms. Private sector participation continues to be limited, reflecting concerns over risk exposure and the availability of financial instruments tailored to impact investments. Additionally, regulatory constraints and institutional capacity gaps present hurdles in effectively structuring and managing blended finance models.

Recently, corporate bonds were issued. Examples include:

- Cellcard (CamGSM) issued US\$ 20 million in sustainability bonds with a focus on reducing the digital divide and supporting environmental and social initiatives.
- Royal Group Phnom Penh SEZ (RGPPSEZ) raised US\$ 10 million in a green bond issuance, supported by the Cambodia Sustainable Bond Accelerator Program, an initiative driven by a partnership among the Securities Exchange Regulator of Cambodia (SERC), the Global Green Growth Institute (GGGI), and the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), in collaboration with Asian Development Bank's Credit Guarantee and Investment Facility (CGIF) and GuarantCo, part of the Private Infrastructure Development Group.¹⁹

For long-term success, it is critical to strengthen policy frameworks, introduce incentives to attract private investment, and foster greater collaboration among government institutions, international partners, and private entities. A more coordinated approach will be essential in expanding access to sustainable finance, mitigating risks, and maximizing the impact of these initiatives on economic growth and environmental resilience.



References

- ¹ Long-Term Strategy for Carbon Neutrality, 2021
- ² UN Global Accelerator. (2024). *Cambodia organizes national consultations to join the Global Accelerator on Jobs and Social Protection for Just Transitions*. Retrieved from https://unglobalaccelerator.org
- ³ UNDP Cambodia. (2024a). *Labour Economic Conference 2024: Economic and employment recovery and the path to LDC graduation*. Retrieved from https://www.undp.org
- ⁴ UNDP Cambodia. (2024c). *Press release: Integrated formalization instrument to enhance social protection in Cambodia.* Retrieved from https://www.undp.org
- ⁵ National Strategy for Informal Economy Development, 2023-2028.
- ⁶ Human-Centered Cities for All: An Inclusive and Sustainable Cambodia | United Nations in Cambodia
- ⁷ Prakas No. 0312 on November 18, 2024.
- ⁸ Urban Solid Waste Management Policy 2020-2030; sub-decree # 113 (2015) on Solid Waste Management; Phnom Penh Waste Management Strategy and Action Plan 2018-2035.
- ⁹ Cambodia's Voluntary National Review. (2023) https://planipolis.iiep.unesco.org/en/2023/cambodias-voluntary-national-review-vnr-2023-accelerating-recovery-coronavirus-disease-covid
- ¹⁰ NDC 2.0 Financial Landscape Stocktake
- ¹¹ UNDP (2021). Cambodia's Development Finance Assessment. https://www.undp.org/cambodia/publications/cambodias-development-finance-assessment
- ¹² National Council for Sustainable Development (2014). Cambodia Climate Change Financing Framework (CCFF). https://ncsd.moe.gov.kh/sites/default/files/phocadownload/POLICYFRAMEWORK/FINANCING/cambodia%20climate%20c hange%20financing%20framework%20ccff_full%20report-en.pdf
- ¹³ World Bank (2024). Scaling-up locally-led climate action in Cambodia. https://documents1.worldbank.org/curated/en/099656207162480432/pdf/IDU113fb1bbd17a381461419eaf1e60bf3fdce99.pdf
- ¹⁴ https://cambodia.un.org/en/288692-upgrading-cambodias-fisheries-enterprises-supported-through-capfish-captures-investment
- ¹⁵ Water for Women. (2023). Climate Finance for WASH: Cambodia. <u>https://www.waterforwomenfund.org/en/news/climate-finance-for-wash-in-asia-pacific.aspx</u>
- 16 https://www.cgcc.com.kh/en/sustainable-green-financing-facility/.
- ¹⁷ https://www.capred.org/storage/ccff-program-factsheet-oct2024-2-9186.pdf
- ¹⁸ <u>https://annual-report.reeep.org/project/affordable-loans-for-clean-energy-in-agriculture-the-clean-energy-revolving-fund/</u>
- ¹⁹ <u>Unlocking green finance: Royal Group Phnom Penh SEZ takes action with green bond issuance Global Green Growth</u> Institute.

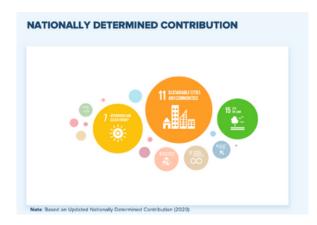
Annex: Methodology

National Priorities Assessment

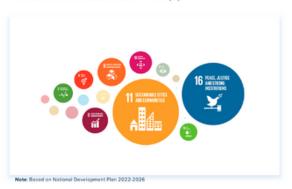
National priorities are assessed using UNDP's <u>SDG Push Diagnostic tool</u> which enables users to explore the priorities of a country in terms of SDGs by analyzing the content of relevant documents. It uses natural language processing to extract and parse the content of a document and a custom-built machine learning model to link this content to SDGs. The main underlying assumption of the tool is that the amount of text linked to an SDG correlates with how important that SDG is in terms of priorities, i.e., the larger the amount, the higher the priority.

By default, the users see the results of the analysis based on the most recent country's Voluntary National Review (VNRs are drawn from the website of the Country Political Forum on Sustainable Development). Through the consultations for the Integrated Insights Reports, Governments and UNDP Country Teams provide a maximum of thirty policy documents relevant for the countries national priorities. These documents often include National Development Plants, National Budgets, SDG roadmaps etc.

To assess policy coherence, we use the latest NDC submission as per the <u>UNFCCC NDC Registry</u> and the latest National Development Plan (or similar documents) which are sourced from public online sources and verified by UNDP country offices and relevant government partners.



NATIONAL DEVELOPMENT PLAN(S)



The model is trained on an improved and cleaned <u>OSDG Community Dataset (Version 2022.07)</u> from UNDP IICPSD SDG AI Lab. Because the original dataset had no texts labelled with respect to SDG 16 and 17 and was multiclass but not multilabel, we relied on dictionary-based approaches using <u>text2sdg</u> package in R and heuristics to augment and modify existing labels so as to obtain multilabel training data for all 17 SDGs. The training texts were all in the English language.

To accommodate the need for an increased interpretability and transparency, we opted for a bag-of-words shallow neural network. The model achieved a macro-average precision of 90% but recall of 75% only on the test set. The results were adversely affected by a particularly poor recall for SDG 17.

Once each piece of text in a document is classified with respect to SDGs, we normalize the counts of texts linked to each SDG by the highest count. This results in all values being squeezed in the range from 0 to 1 and at least one SDG always having the value of 1. We call these values "relative salience" or "relative importance". We assume that a higher relative

salience implies a higher priority for the country. Finally, we assign the priority tier to each SDG based on its salience as follows: high priority (> 0.75), medium priority (< 0.25) and (< 0.75) and low priority (< 0.25).

As expected, across countries, the analysis shows that in the NDC documents, SDG 13 is typically the most important SDG. Thus, in order to be able to present a comparison between the broader development goals in both sets of documents, an ad hoc decision to move beyond the clear importance of SDG 13 in NDC submissions, the relative salience scores for the SDG with the second highest salience score are rescaled to 1.0 and all other SDG relative salience scores are scaled relative to it. SDG 13 is thus omitted from the analysis.

Where required, to support the analysis of multilingual texts, we use machine translation. We tested the robustness of this strategy by comparing the results for VNRs that are available in English and one other official UN language. First, we obtained the results for the original English version. Then, we used machine translation to translate the non-English version to English and analyzed that. We compared the results across 5 official UN languages plus Portuguese and German using 14 different reports. We found that 91% of assigned priority tiers do not change when machine translation is used.

There are three key limitations to the current approach.

- 1. It has a particularly poor performance for SDG 17 (due to the limitations of the original data).
- 2. It cannot natively handle multilingual data.
- 3. The main underlying assumption of the tool may not hold true in some cases.

We are going to address the first and the second limitations in the next release of the tool. To enable broader and more consistent SDG classifications compared to the OSDG Community dataset, in 2024 a more comprehensive, multilingual collection of texts labelled by SDGs was developed. This dataset (the 'SDGi Corpus') was manually curated based on the contents of more than 350 Voluntary National Reviews and close to 200 Voluntary Local Reviews, covering 8 years of SDG reporting. The SDG Push Diagnostic through which the national priorities are analysed will be updated with this new data and there is ongoing work to include further relevant data for SDG classification.

Regarding the third limitation, using thematic documents only will provide results that reflect the fact that some SDGs are simply not discussed in them or discussed much less than others. We therefore recommend making sure that the documents included in the analysis cover different aspects of the country's policies.

Assessment of Interlinkages

NDC activities are extracted manually from a country's latest NDC document and, where needed, mapped to national sectors, following the sectors identified in the Ambition-to-Action SDG Climate Action Nexus (SCAN) Tool. Due to the contextual differences between mitigation and adaptation actions, there are differences between the lists of sectors. Emissions sectors, rather than economic ones, are considered for mitigation actions, while adaptation sectors are compiled using the World Bank's adaptation NDC platform3. A 'Crosscutting sector is included to capture the options and instruments that span different sectors—or are non-sector specific.

For mitigation actions, generally across all sectors, these are grouped into three broad categories of action: 'Changing Activity', 'Reduce emissions intensity' and 'Increase energy efficiency'. For transport, buildings, industry and waste sectors, all three categories are relevant whereas for electricity and heat sector, only the emissions intensity and energy efficiency categories are relevant given that a reduction in the demand of the activity would refer to a reduction in energy demand which is captured in the energy efficiency categories of all other relevant sectors. In the case of agriculture, energy efficiency is not included as the energy required is assumed to be included either under the industry, buildings or transport sectors. For the forestry sector, only the changing activity category is relevant. The mitigation actions are then further mapped to more granular mitigation sub-categories.

For adaptation actions, the adaptation actions are classified under two relevant categories: 'Reduction in vulnerability' and 'Reduction in exposure'. As per IPCC AR5, Vulnerability is defined as "the propensity or predisposition to be adversely affected" and exposure is defined as "the presence of people, livelihoods, species or ecosystems, environmental functions, services and resources, infrastructure or economic, social or cultural assets in places and settings that could be adversely affected." Because exposure depends on the interplay between climatic parameters and the natural and human-built environments, the SCAN-tool factors in environmental structures in framing exposure risk. For each sector, the two broad categories are further classified into four adaptation sub-categories; the full list is available in the <u>SCAN-tool methodology note</u>.

Adaptation Sectors
Transport
Agriculture
Forestry
Cross-cutting
Coastal Zone
Ecosystem Management
Energy
Health
Urban

The core of the tool is the sector work sheets where information about the linkages between actions and the SDGs is entered. SDG 13 and SDG 17 are not assessed. SDG 13 is omitted because the SCAN-tool is designed to help identify linkages between climate action and other development areas; SDG 17 is not included because this goal is interpreted by the authors as aligned with the mobilization of international resources to achieve the SDGs and not a development area comparable to the other SDGs. The tool is populated using a literature review of the climate-development links and collects data from several studies on the nexus between climate action and specific development areas (lacobuta and Hohne, 2017; Fuso Nerini et al., 2017; Pradhan et al., 2017; IPCC, 2014)—and complemented by an expert review.

Thus each climate mitigation or adaptation activity is mapped to the relevant SCAN-tool mitigation or adaptation action sub-category and from there mapped as a potential synergy or trade-off to SDG targets (excluding the ones which comprise SDGs 13 and 17).



UNITED NATIONS DEVELOPMENT PROGRAMME One United Nations Plaza, NEW YORK, NY10017, USA

WWW.UNDP.ORG
© UNDP 2025

