Cambodia

Resource Efficiency Policies

Natthanij Soonsawad, Raymundo Marcos Martinez, Heinz Schandl

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Foreword

The Asia-Pacific region consumes over two-thirds of the world's natural resources, at a rate of resource efficiency three times lower than the rest of the world. The region is also in a continuous state of rapid urbanisation and economic growth. Such dynamics partly drive the rate of resource use, as infrastructure and housing are built for the first time and the economy transitions from primary to manufacturing activities.

The United Nations Economic and Social Commission for Asia and the Pacific seeks to support cities integrating resource use sustainability into their operations and development strategies. ESCAP is partnering with an institution with internationally recognised expertise in resource efficiency. The Partner Institution, CSIRO, is the world's leading research institution dealing with resource efficiency and material flows, which are the basis for designing sustainable consumption and production policies. The scientists at CSIRO are part of the UN Environment Programme International Resource Panel (IRP) modelling working group, which developed the modelling framework for the Global Resource Outlook 2019 (GRO2019). The partnership will help in establishing a baseline dataset and preliminary policy studies for countries and cities in the Asia-Pacific region. With access to material flow databases and proprietary systems models integrating global resource flows used in GRO2019, CSIRO is uniquely placed to present historical resource use trends to enhance policy design capacity towards sustainable consumption and production in Asia and the Pacific region.

This report has been produced under an agreement between ESCAP and CSIRO to strengthen the capacity of ASEAN policymakers to analyse the economic, social and environmental effects of resource consumption and the benefits of decoupling economic growth from natural resource use and its environmental impacts.

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Country background

Cambodia has made significant progress toward achieving the Millennium Development Goals (MDGs) in recent decades. As a result, the country transitioned from Low-Income Country (LIC) to Lower Middle-Income Country (MIC) status in 2015. Currently, there are several medium- and long-term strategic development frameworks to help Cambodia achieve the development conditions of the Upper Middle-Income Country category by 2030 and become a High-Income Country by 2050 (Government of Cambodia, 2019). The processes associated with rapid economic development significantly impact local to global natural resource use and supply. Such processes need to be carefully managed to ensure that long-term sustainability strategies support continued income growth.

Cambodia's National Green Growth Roadmap has promoted development strategies to achieve environmentally sustainable economic progress, social inclusion, and low Greenhouse Gas emissions. Such a roadmap included initiatives to encourage sustainable consumption and production, green markets and businesses, and sustainable infrastructure. Several policy instruments such as green taxes and budget reforms were implemented to promote green economic growth, job creation, access to crucial goods and services, gender equality, and long-term resilience to environmental and socioeconomic factors (Government of Cambodia and ESCAP, 2009).

Macro-economic overview

Cambodia's economy is one of the fastest growing in the ASEAN region. From 2010 to 2020, GDP grew by 6% per year, unemployment decreased from 0.77% to 0.33%, per capita GDP (US dollars) increased from $786 to $1,513, and the inflation rate was around 3% per year[1,2]. Strong economic growth, tax compliance and improvements in tax collection increased total revenue from 15% of GDP in 2013 to 22.2% of GDP in 2018. Public debt was around 30% of GDP between 2015 and 2018. Severe poverty, i.e. people with income below the international poverty line of $2.19 per day (in 2020 prices), was 17.8% in 2020. The economy continues shifting from agriculture to industry, but tourism, garments, and construction are still key sectors. The ongoing COVID-19 pandemic generated a contraction in GDP of around 2.8% in 2020[3].

The sustained economic growth and increased revenue have encouraged economic transformation, productivity improvement, increased consumption, public expenditure in multiple sectors and infrastructure development. This has helped Cambodia achieve its Millennium Development Goals around poverty, hunger, nutrition, death and health.

[1] https://datacommons.org/place/country/KHM

[2] https://data.worldbank.org/indicator/FP.CPI.TOTL.ZG?end=2020&locations=KH&start=1995&view=chart

[3] https://www.dfat.gov.au/geo/cambodia/cambodia-country-brief

Resource Efficiency Context

Legal framework

Cambodia's strategic frameworks to transition to an Upper Middle-Income Country by 2030 and a High-Income Country by 2050 directly impact resource efficiency (RE) indicators. Such frameworks include the *Political Platforms* and *Rectangular Strategy IV* in the Sixth Legislature of the National Assembly (2019–2023), the National Strategic Development Plan 2019–2023 (NSDP), the *Green Growth Roadmap* (2009–2023), the *National Strategic Plan on Green Growth 2013–2030*, the *National Environment Strategy and Action Plan 2016–2023*, and the *Cambodian Sustainable Development Goals* (CSDGs) 2016–2030 (Government of Cambodia, 2019). In particular, the Cambodian government has formulated policies to mitigate climate change impacts, including the *Climate Change Strategic Plan 2014–2023*, sectoral *Climate Change Action Plans* such as the *Climate Change Action Plan for Industry and Handicraft Sectors 2015–2018*, and *Nationally Determined Contribution (NDC)* in response to the Paris Climate Agreement in 2015.

Sectoral policies related to resource efficiency

Agriculture

Despite the ongoing economic transition from agriculture to industrial activities, Cambodia aims to strengthen the ability of its agricultural sector to create jobs, ensure food security, and develop rural areas. The previous National Strategic Development Plan (NSDP) 2014–18 identified several challenges limiting growth in the agricultural sector. For example, there had been underutilisation of agricultural land, low productivity, low quality of agricultural inputs, limited livestock farming and aquaculture, along with weak sanitary and phytosanitary systems. Export facilitation mechanisms are limited, while the country has continued importing agricultural products that can be supplied domestically. Furthermore, there is inadequate research and development (R&D), the lack of a mechanism for providing agricultural market information, technical services that are yet to be responsive to demands, and low development of agricultural supply chains. In addition, there is a need to improve the quality and extent of rural infrastructure, including access to clean water and rural sanitation. The current National Strategic Development Plan (NSDP) (2019–2023) includes policies to overcome these challenges.

Strengthening legal frameworks and sub-sector policies. Implementation of the *Master Plan for Agriculture Sector Development towards 2030* and the *Agriculture Sector Strategic Development Plan 2019–2023,* as well as expediting the preparation and enforcement of the *Law on Plants Protection and Sanitary and Phytosanitary* and the *Law on Contract Farming*. Frameworks to promote livestock and aquaculture activities include the *Law on Animal Health and Production*, the *Strategic Planning Framework for Livestock Development 2016–2025*, and the *National Aquaculture Development Strategy 2016–2030.*

Targeted investments. Prioritising investments to add value to key agricultural products, e.g. developing processing plants. Promoting investments in the research and development of high-value crops, livestock and aquaculture and irrigated farming.

Improving farming networks and mitigating financial risks. Developing agricultural extension, insurance services, and other financial products to support agricultural production. Facilitate contract farming production, improve farm management to reduce costs and improve the quality of agricultural outputs and inputs, e.g. by using digital and smart agriculture methods.

Improving international trade. Reduce trade barriers and promote the consumption of domestic products to reduce agricultural imports. Develop infrastructure to improve and certify the quality of export products.

Promoting rural development. Improving the management of land concessions, particularly for poor households for small-scale farming. Maintaining and expanding rural roads and irrigation infrastructure and ensuring access to electricity and clean water. The programs *One Village One Product Movement* and *New Village Movement* are aimed at supporting rural development.

Transportation and internet

Cambodia faces high transportation costs and limited institutional engagement to develop and maintain transport infrastructure. Coordination between urban planning, industrial development, and land use policy is needed for more efficient management of transport infrastructure. Investments in digital infrastructure, e.g., providing broadband access through optic fibre, could also reduce logistical costs.

The current NSDP-listed strategies for sustainable transport include planning infrastructure development using a master plan to coordinate the development of roads, railways and waterways for main urban areas; financing the rehabilitation and expansion of physical infrastructure such as investing in improving quality, quantity and sustainability of transportation infrastructure. Furthermore, the Cambodian government aims at enhancing digital connectivity through expanding and improving fibre optic infrastructure and the quality, cost and coverage of mobile phone networks.

Energy

Electricity is relatively expensive in the country, and the energy supply is unreliable. Renewable energy sources can increase energy production and reduce energy poverty in the country. The Cambodian government is implementing policies to generate reliable and affordable energy supply for all users and incentivise energy efficiency and energy-saving actions.

The NSDP sets out strategies such as improving energy supply networks by constructing sub-stations in areas of current and potential high economic growth; promoting investments to increase energy supply and improve its reliability by providing incentives to increase renewable energy production and develop the capability to generate nuclear energy for civil uses; and promoting more efficient energy use in buildings through strengthening energy standards for new buildings. In addition, the National Energy Efficiency Policy 2018–2035 sets a greenhouse gas emission reduction target of25% relative to baseline by 2035 through improving energy efficiency. It lists different types of interventions such as raising awareness through campaigns and technical training for energy efficiency, energy audits and waste management, as well as providing incentives to companies that implement energy efficiency measures (The Global Green Growth Institute, 2018). There are also initiatives and plans to promote energy efficiency in buildings, including the meeting held by the Ministry of Environment in 2021 to discuss drafting green building guidelines and certification (The Phnom Penh Post, 2021), and the recent collaboration between the Cambodia Green Council Building and the Global Green Growth Institute to establish Cambodia-specific green building rating and financing schemes (The Global Green Growth Institute, 2021).

Water

Integrated management of Cambodia's water resources requires consideration of the domestic water-food-energy nexus, evaluation of current and potential climate change impacts, e.g. increasing frequency and severity of droughts and floods, and coordination with Mekong Member Countries to promote the sustainable

management of the Mekong River Basin to preserve environmental assets and improve livelihood conditions of vulnerable communities in the Basin.

Current strategies to promote water use efficiency include promoting integrated water resource management by developing and implementing plans to ensure long-term water security and reduce potential impacts of flood and drought events; developing capability for sustainable water use by providing access to training and information about green development, climate change, integrated water resource management, clean water, and sustainable use of natural resources; ensuring access to clean water through strengthening the monitoring and control of water pollution sources to guarantee sustainable access to clean water at a fair price. The Sixth Legislature of the National Assembly set a target of 100% access to clean water in cities by 2025. Regarding the management of water resources, the plan listed the policy of enhancing the technical and financial management of water resources and the legal framework associated with urban water supply and promoting the decentralisation of urban water supply.

Material and waste

The higher purchasing power of Cambodia's households has increased domestic materials consumption (e.g. electronics, food, building materials) and waste flows. Moreover, toxic pollution from laundry factories and the garment sector as well as vehicle service stations has created water pollution. There is limited monitoring of imported products such as electronic waste. Additionally, challenges include inadequate equipment and infrastructure, local capacity and stakeholders' participation towards efficient waste management in the country (Government of Cambodia and ESCAP, 2009; Government of Cambodia, 2019).

The current NSDP-listed policies aim at promoting reduction, reuse, recycling and non-use of materials; improving the management of solid waste, wastewater, and dangerous waste through more efficient use of materials; strengthening the monitoring and control of waste-related pollution; promoting resource use efficiency through sustainable consumption and production methods; and increasing the use of environmentally friendly and climate-friendly technologies in physical infrastructure (Government of Cambodia, 2019). Regarding sustainable waste management, the National Green Growth Roadmap of Cambodia lists policy interventions that can improve water quality, including improving the country's environmental awareness, especially in the younger generation, enforcement and monitoring systems, promoting waste separation and using incentives such as tipping fees for recycling certain wastes. Furthermore, the government aims to promote waste-to-energy projects such as bio-digesting and waste incineration. These activities could be undertaken across multiple line ministries for different sectors' waste management (Government of Cambodia and ESCAP, 2009).

Urban planning and land use

More efficient planning and management to generate liveable and clean cities is a strategic goal of the Cambodian government. To achieve such a goal, the government faces some challenges, such as the lack of master development plans for most Cambodian cities, irregular residential settlements and encroachment of public lands and lakes, the lack of adequate plans for maintaining and expanding the built environment, inefficient transportation infrastructure, and the absence of a well-defined legal framework for heritage buildings.

According to the current NSDP, the government aims to improve legal frameworks on sustainable urban planning, namely continuing land reforms and developing urban land use master plans, strengthening legal frameworks around land tenure and developing land management and urban plans at national and sub-national levels, as well as improving and enforcing construction standards through enhancing laws, regulations, technology and building standards to promote quality, safety, beauty, efficiency and smart city

principles in new constructions. The plan also focuses on developing local capacity to manage urbanisation processes such as designing, implementing and monitoring land use plans, land zoning regulations and land management through digital technologies; strengthening the implementation of affordable housing programs; and enhancing the management of urban spaces and city services such as urban waste and sanitation, public order, lighting, transportation, heritage buildings, parks and recreational areas.

Industrial sector

The industrial sector's contribution to Cambodia's GDP grew from 17% in 1998 to 29% in 2016. Continued growth in this sector is key for job creation and poverty reduction. However, domestic industry needs to increase its productivity and access premium markets to achieve such growth. In the Industrial Development Policy 2015–2025, the Cambodian government is promoting a transformation from labour-intensive industry to skill-based industry, integrating local businesses into global and regional supply chains. Improvements in the environmental performance of the industrial sector through investments in resource-efficient technology can contribute to economic growth while yielding social and environmental benefits (The Global Green Growth Institute, 2020).

The NSDP sets out policies to improve the operation of Special Economic Zones to promote investment and development of agro-industries, furniture and household manufacturing industries; enhance competitiveness; and increase added value activities. Other focused activities include diversifying the tourism sector, developing a domestic oil and gas industry, and implementing carbon trading programs and climate change adaptation action. The current Industrial Development Policy (2015–2025) highlights a wide range of policies such as diversifying the industrial base, developing infrastructure (water, telecommunications, transport, and sewerage) as well as modernising industrial structure from labour intensive industries to skill based industries, and integrating local businesses into regional and global and supply chains (The Global Green Growth Institute, 2018).

Cambodia's performance in sustainable consumption and production (SDG 8 and SDG 12)

Cambodia's Material Footprint (MF) per unit of GDP (indicator 8.4.1) and Domestic Material Consumption (DMC) per unit of GDP (indicator 8.4.2) have followed similar trends from 1970 to 2019 and been consistently above average values for the ASEAN region (Figure 1) (International Resource Panel, 2022). These two indicators increased from around 8.2 kg per USD of GDP in 1970 to almost 12.5 kg in 1983 and decreased afterwards, reaching an average of 5 kg in 2005. Despite increases around 2010, MF per unit of GDP was around 4.7 kg from 2005 to 2019, and DMC per unit of GDP was around 5.5 kg (Figure 1).

DMC and MF per capita decreased from around 4.5 tonnes in 1970 to 2.5 tonnes in 1979 and remained almost unchanged until 2005 (Figure 2). From 2005 to 2019, these two metrics increased, reaching 7.5 tonnes of DMC and 5.7 tonnes of MF per capita at the end of the period. Both indicators have been consistently below the corresponding ASEAN average since 1970 (Figure 2).

According to the SCP Hotspot Analysis database[4], the largest contributors to domestic raw material consumption were the agriculture and construction sectors. Agriculture was responsible for 35% of total material use and employed 18% of the total workforce. Construction activities required one-fourth of all

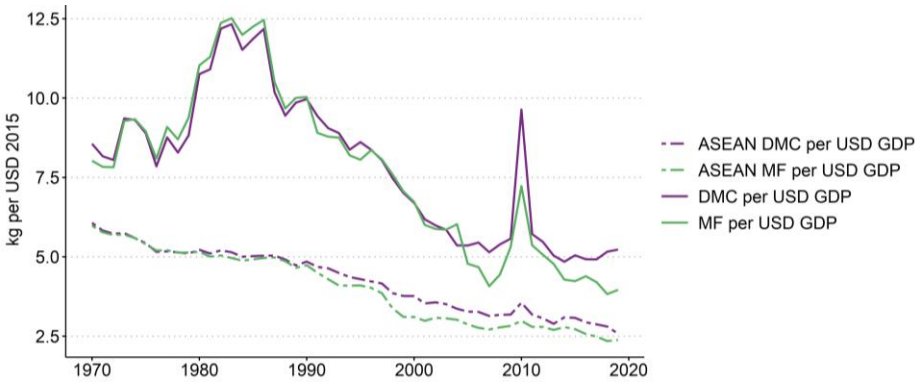
[4] http://scp-hat.lifecycleinitiative.org/sector-profiles/

materials used in the Cambodian economy and employed 9% of the total workforce. Both sectors, therefore, lowered the overall resource efficiency of the economy.

SDG Target 8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-Year Framework of Programmes on Sustainable Consumption and Production, with developed countries taking the lead.

Indicator 8.4.1 Material Footprint[5] **(MF) per unit of GDP:** 4 tonnes per 2015 US$

Indicator 8.4.2 Domestic material consumption (DMC) per unit of GDP: 5.2 tonnes per 2015 US$



Data source: International Resource Panel (2022)

Figure 1 Material footprint and domestic material consumption per unit of GDP in Cambodia and ASEAN countries

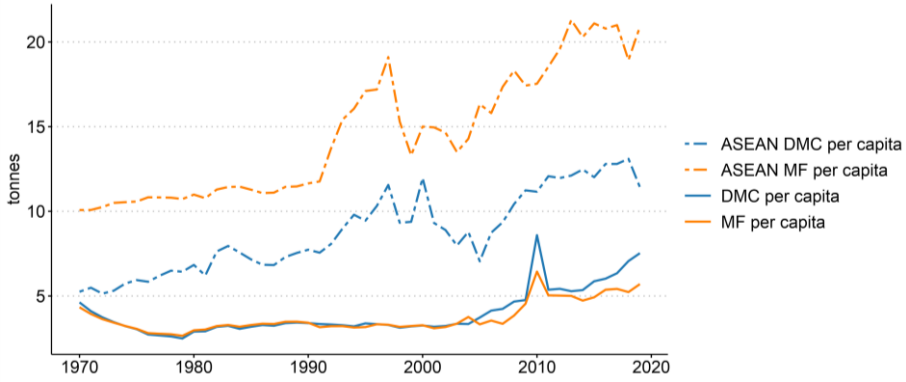
Target 12.2 By 2030, achieve the sustainable management and efficient use of natural resources.

Indicator 12.2.1 Material footprint: 94 megatonnes

Material footprint per capita: 5.7 tonnes per capita

Indicator 12.2.2 Domestic material consumption: 124.1 megatonnes

Domestic material consumption per capita: 7.5 tonnes per capita



Data source: International Resource Panel (International Resource Panel, 2022)

Figure 2 Material footprint and domestic material consumption per capita in Cambodia and ASEAN countries

[5] The total material footprint is the sum of the material footprint for biomass, fossil fuels, metal ores and non-metal ores, measured in tonnes per person per year.

Enabling conditions and opportunities for resource policy implementation

1. Continuous actions and meaningful public participation: As international partners have provided continued support and domestic and foreign private sectors have been actively involved in business and production and social support, more continuous involvement of citizens on the ground will lead to a sustainable contribution to the implementation of development plans. It can be started with projects supporting SCP that have been completed through capacity building from international partners such as the European Union, USAID, and ASEAN.

2. Capacity building in younger generations: As the projected median age of the total population in 2020 is 25.6 years old (United Nations, Department of Economic and Social Affairs, 2019), this is an opportunity for the government to improve their skills to prepare for new jobs in focused sectors in green growth strategies such as agriculture, service/tourism, and energy.

3. Benefits from local resources: As the current NSDP lists several strategies to promote *One Village One Product* along with the country's richness in natural resources, there are opportunities for clean, modern and sustainable agriculture, as well as small processing and manufacturing industry in the form of SMEs, which are increasingly in demand in domestic and international markets. In addition, *One Village One Product* can create jobs, income and strengthen communities, especially the most impoverished ones.

4. Tracking and collecting data: As there have not adequate updates on some statistical data and monitoring and evaluation of recycling rates, material footprints and domestic material consumption, there is a need in this regard. For example, there is no precise information on the recycling rates of Cambodia in the UN report on waste management in ASEAN countries (UNEP, 2017). The collection of SDG indicators is important as the SDGs are the enabling framework to help countries track performance over time.

5. Economic incentives: Not only do hybrid business models of government provide subsidies or grants as incentives for implementing SCP projects, but public-private partnerships can also help bridge the gap for decentralised systems like SMEs. Some areas that could create co-benefits and contribute to better resource efficiency and circular economy, such as second-generation biofuel production from agricultural or food wastes, need government support to provide capacity building and incentives in executing projects.

6. Media involvement: Engagement with media could be strategic in bringing advocacy in resource efficiency to public attention. It could be undertaken through training media to report on resource efficiency and sustainable consumption and production, and raising public awareness, especially involving private enterprises in greening their businesses (SWITCH-Asia, 2021).

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Contact us

1300 363 400
+61 3 9545 2176
csiro.au/contact
csiro.au

For further information

Land and Water
Heinz Schandl
heinz.schandl@csiro.au
csiro.au/land&water